

CONSUMERS UNION *reports-*

OCTOBER 1937

*(For a note on the cover
picture see page 7)*

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PRICE-FIXING

And What Consumers
Can Do About It

WOMEN'S SLIPS

Ratings of 19 Brands

HEATING EQUIPMENT

For Coal & Oil

BREAKFAST CEREALS

What They Are
& Aren't

AUTO RADIOS

Ratings of 12 Models

•

Labor Notes, News,
Letters, Editorials
and Other Features

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CONSUMERS UNION
OF UNITED STATES



CONSUMERS UNION reports

Vol. 2, No. 8

October, 1937

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Photographs, unless otherwise credited, taken for CU by John Mills.

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CU's ratings of products are based on both quality and price. A product rated "Also Acceptable" may be of higher quality than one rated "Best Buy," but the "Best Buy" will normally give greater return per dollar. In most cases a product rated "Not Acceptable" is judged not worth buying at any price, because of inferior quality or because it is potentially harmful. Products rated "Not Acceptable" for more specific reasons are so noted.

Letter from a Member

CONSUMERS Union, as we have pointed out in the *Reports* many times, is a strong supporter of organized labor.

A bona fide consumer organization could not be otherwise.

For the consumer and the worker are by and large the same person. And to maintain that person's standard of living it is quite as important that the consumer in his capacity of worker should get a decent income as it is that the worker in his capacity of consumer should get his money's worth when he spends his income.

The great majority of CU members recognize and approve this stand. But from time to time a letter comes in protesting the attention that CU pays to labor. We should like to quote a recent one here, received from a member living in Santa Paula, California:

... Your reports on the labor situation are rather getting away from the purpose of your organization. The matter of labor conditions and whether or not the factories producing a product have signed a contract with the CIO are certainly not a matter that affects the quality or value of a product. Your editorial in the ... [July] issue is certainly one that might be expected in a labor union periodical but I cannot see that it has any place in a magazine devoted to reports on products.

Do not from the above suppose that I am opposed to unions. I am an employer of labor in a small way myself and I believe whole-heartedly that the right kind of union leadership has done a great deal for the workingman. However, your reference to the "shadow of Tom Girdler" is inflammatory propaganda of the rankest kind and certainly has no place in an unprejudiced magazine. It is still the right of any employer to demand

that any persons with whom he signs a contract show that they are able and willing to keep a contract before he signs it. ...

It is my thought that if you desire to get into the labor angle, you should publish a separate magazine and give it a true name and not try to deceive the public into reading labor propaganda by mixing it with reports on products.

Insofar as Tom Girdler's activities are concerned, our correspondent has a perfect right to interpret them in any way he chooses.

But isn't it just a little naïve to rely on the good faith of anti-union charges made by a violent, life-long union baiter, particularly when he charges unreliability against a union with which the major automobile companies and all of the major steel companies (among others) have signed contracts?

We think other reasons motivate Tom Girdler, and we know of a number of employers of labor who think the same.

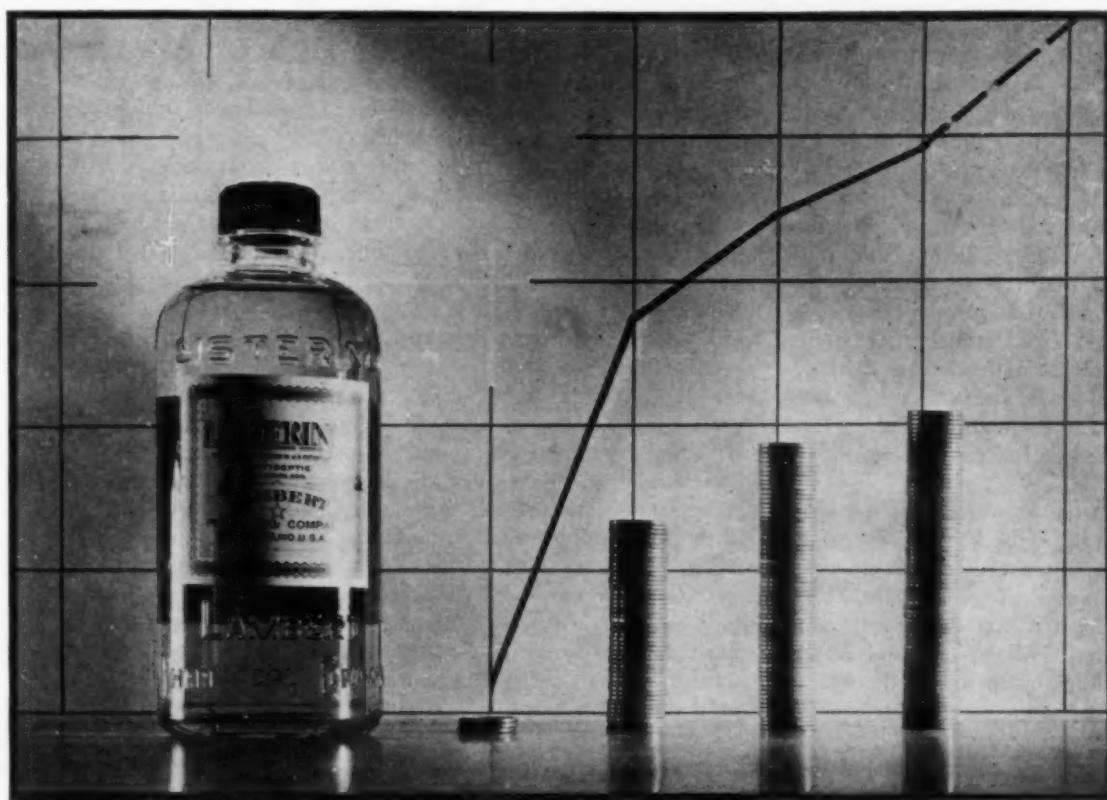
It is not our intention, however, to open an argument on Tom Girdler here. What we do want is to put our correspondent straight on several misapprehensions underlying his letter (and in passing let us thank him for its straightforwardness).

Contrary to his impression, CU is not departing from its original purpose by reporting on labor conditions and writing in support of union labor. Many of the sponsors and charter members interested themselves in the establishment of CU precisely because of the announced plan to supplement technical reports with labor notes.

(Continued on page 32)

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What Price-Fixing Means



A PHOTOGRAPHIC ANSWER TO THE QUESTION

The first pile of coins above (3c) represents approximate cost of ingredients in the bottle of Listerine (labor and the bottle itself might add 1½c). The second pile shows what the dealer pays for the Listerine—47-50c depending on deals and discounts allowed him by the manufacturer. As price-fixed, this bottle of Listerine cannot be sold for less than 59c. What does the dealer sell it for, on the average?

The third pile of coins shows the average price of Listerine in Massachusetts a few months ago, before that state had a price-fixing law. This pile contains 63c. The fourth pile shows Listerine's average price in Illinois at the same time under price-fixing. This pile contains 71c (both figures from Druggists Circular). Part of the 8c differential may be due to normal price variances between the states. But most of it is due to price-fixing.

LOUIS TRYWUSCH does a good business with his drug store over on Third Avenue in New York City. It has been specially profitable lately, thanks to the profit-boosting accomplishments of the Fair Trade Committee of his state pharmaceutical association, and he is pretty well satisfied—except for the baby food situation.

From a profit point of view that hasn't been doing so well, though by dint of some unusual enterprise he has been able to make it pay out a bit better. Still, he knows an easier way to make money on baby food, and the way is clearly suggested in a letter which he addressed last month to the

The accompanying article, analyzing the development of price-fixing and its significance, was prepared by a leading authority on the subject in collaboration with CU's staff.

editor of the *New York State Pharmacist*:

The question of baby foods is a very important one. I am delighted to see the Fair Trade Committee take up this matter. . . .

We handle most of the powder brands. We sell Dextri Maltose at 47c but buy it from Macy at retail for from 41c to 44c. If we were

compelled to purchase it from our jobber the price would be 51c.

We sell Ovaltine at 47c, buying it from Macy at from 41c to 44c. The jobber's price is 49c.

We sell Pablum at 31c, buying it from Macy at 29c. The jobber's price is 34c. . . .

Louis Trywusch, it will be noted, is "delighted to see the Fair Trade Committee take up this matter" of baby foods. Why is he delighted? Simply because he knows that after the Fair Trade Committee has talked things over with the baby food business he will not have to make the trip to Macy's department store any more

to buy his supplies at prices enabling him to keep in the fore of competition with his fellow-pharmacists.

He will then be able to buy *Dextri Maltose* from his regular jobber at 51c, *Ovaltine* at 49c, and *Pabulum* at 34c; mark them up sufficiently to yield a substantial profit (possibly a minimum of 39%); and sell them with complete assurance that nobody in town can undersell him. Not Macy's. Not any other druggist.

Don't blame Louis Trywusch too much. He's got his living to make. But what is this wonder-working Fair Trade Committee that can so positively arrange to boost prices to the consuming public, and free retailers like Louis from all threat of price competition? For baby foods are simply one case in point. The same thing is happening with products all along the line.

TO FIND the answer to our question we must go back a bit—back 26 years, to be exact. Back to the time the Supreme Court told the Dr. Miles Medical Co. that it could not sign contracts with its wholesalers and retailers forbidding them to sell the Miles' products at less than a stipulated price. Such contracts, the court said, were a restraint on trade and violated the Sherman anti-trust act.

In that 1911 decision Mr. Justice Hughes held that "the complainant having sold the goods at prices satisfactory to itself, the public is entitled to whatever advantage from competition in the subsequent traffic."

Ever since then, manufacturers in various fields—notably drugs and cosmetics—have sought to get around that decision, either to fix prices for their own ends, or because retailers demanded a policy which would protect them from their own price competition while guaranteeing them a profit. Even a quarter of a century ago the small-time apothecaries were feeling the competition of department stores, mail-order houses, and the immature chain systems.

Conscious of these demands and conscious, too, of the bulk of business transacted by the independent merchants, various manufacturers sought to curry favor and win special sales support by skirting the Miles decision and coming as close as possible to the goal of resale price maintenance.

They quoted "suggested" prices. They secretly refused to sell to price-cutters. And every time the courts or the Federal Trade Commission cracked down, they hauled in canvas. But they never changed their course.

Despite this cooperation, independents continued to go to the wall as the chains grew. And with each casualty, the demand for price protection became stronger. But it availed little. For the great bulk of manufacturers were afraid to use tactics that were too brazenly illegal; and they couldn't afford to use the expensive technique of fixing prices by consignment selling (retaining ownership in their products until the retailer, acting as agent, disposed of them).

THEN in 1931 the druggists in California found a way around. The Miles decision might forbid price agreements in interstate commerce, but the Sherman act was a federal law and it could not touch trust agreements which were signed and effected wholly within the borders of the sovereign state of California. So they concocted a bill which would permit California manufacturers to set minimum prices on their goods in contracts with California retailers, and they pushed the bill through the state legislature.

Ironically enough, that was called the fair-trade law.

Big manufacturers like Bristol-Myers, the Armand Co., Dr. West, and dozens of others in the drug, liquor, and auto accessory fields who had their headquarters in other states were rapidly induced to become California manufacturers by the simple technique of incorporating separately in that state. Others instructed their wholesalers to act as agents in fixing prices on their goods under so-called omnibus contracts. To the independents it seemed that the millennium was here.

But joy was short-lived. New price-cutters like the Sontag chain of "pineboards," so-called because their display counters were literally built out of pineboard packing cases to achieve rock-bottom economy, rose up and began to sell various advertised brands at less than the price set in the contracts. The independents wanted to know how come. So did the manufacturers, for they hadn't sold any goods to the price-cutters.

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The answer soon became obvious: the price-cutters were getting their goods in other states where free price competition still reigned.

Once again the price-fixing power put their heads together; and this time they came up with an even better idea than the original fair-trade law. It was an amendment to that act, an amendment which made it actually illegal for any California dealer to sell goods at less than the price set in any California contract, regardless of whether or not he had signed such an agreement. With this "non-signer" clause, "fair trade" came of age.

BEGUILED by false hopes of attaining a price-fixed paradise under NRA, druggists in other states were not immediately impressed with the achievements of their California brethren. But, fruitless as it was, the work for price protection under the codes served a purpose; it created among the druggists a national unity, and out of this came the National Association of Retail Druggists (N.A.R.D.) to run affairs with an iron hand.

The precise role of the manufacturer in these developments remained controversial, as it has throughout subsequent developments. That a number of important ones were actively working for price-fixing was not to be doubted. The picture was confused because even manufacturers who didn't want price-fixing, fearing it would cut sales volume, had to say they did or incur the enmity of retailers.

But opponents of price-fixing charged that more than met the eye was going on behind scenes, that interested manufacturers were inspiring the whole movement, using the retailers as front and riding to their goal on the retailers' work. To whatever extent this was true, it was a smart tactic. Because the new association proved a most effective instrument.

STATE legislatures were soon to know just how powerful an outfit the N.A.R.D. was, for as NRA fervor began to wane, the association launched an ambitious campaign to enact a price-fixing fair-trade law in each of the 48 states. Two or three of them had already duplicated the California measure on their own statute books. By the end of last year there were

fifteen states which had fair-trade laws either of the California type or modeled after a refined statute drafted by the N.A.R.D.

But were these laws legal? Unanimously, the New York Court of Appeals, highest bench in the state, said no in a case brought by Doubleday, Doran & Co. (book publishers) against R. H. Macy. New Jersey and Wisconsin courts agreed. The non-signer clause, they said, deprived a man of property without due process of law.

Not so impressed with past precedent were the courts of California and Illinois. These stamped a somewhat timid O. K. on the fair-trade laws and let them ride along to the Supreme Court for final disposition.

THE middle of last December, to the amazement of everybody—including the druggists—the Supreme Court cast precedent to the winds and unanimously held the fair-trade laws constitutional down to the last comma. It did this on the somewhat questionable assumption that price-cutting injured the good will which a manufacturer established in his trademark.

In an exhaustive study of the subject the Federal Trade Commission had found no evidence of serious injury being thus wrought.

But the Supreme Court, wonderfully solicitous about the manufacturer and his good will, held that as long as there was any question about the economic effects of price-cutting, state legislatures should have the right to deal with the issue as they saw fit.

The N.A.R.D. may have been surprised by the decision, but it recovered quickly. Marshaling its forces in a triumphant offensive, it ran the bill through legislature after legislature until, at the end of the recent sessions, there were 42 states with fair-trade laws in full force and effect.*

And then the N.A.R.D. went gunning after bigger game—the Congress of the United States and the President. Having gone so far, it wanted to go the whole way. It wanted a law which would amend the Sherman and Federal Trade Commission acts to permit a manufacturer in one state to issue contracts under another state's laws.

* The six without fair-trade laws as yet: Texas, Delaware, Vermont, Missouri, Mississippi, Alabama.

"THE CONSUMER WILL NOW DECIDE...."

and the Consumer pays the bet!

MARCH From time to time since March 9, 1937, when the Field-Crawford Price Fixing law became effective in New York State, it has been the duty of one New York store, in protecting the interests of some 137,000 consumers a day, to report the actual progress made by the price-fixers at the expense of the consumer.

AUGUST The campaign by drug and liquor interests to weave a net of price-fixing over the U. S. proceeded so smoothly that by August some 42 states had passed laws similar to the New York law.

On August 18, 1937, the Miller-Tydings bill, passed by the U. S. Senate and the House to legalize inter-state price-fixing in all price-fixing states, was signed by President Roosevelt, with the following pointed comment:—

"I have decided to sign the bill in the hope that it will not be as harmful as most people predict, and I call attention to the fact that one of the principal objections to the rider is that the department suppressing it believes it will seriously reduce the cost of many articles in the consumer market."²⁰

SEPTEMBER Up to September 1, 1937, the extent of legalized price freezing on price-fixed articles in Macy's store may be judged by the following totals:

—in COSMETICS, 1124 articles were sold, by reason of price-fixing, an average of 10% over the prices at which they had sold, in free competition, in Macy's prior to price-fixing.

—in DRUGS, 360 articles were raised, by reason of price-fixing, an average of 15.7% above the prices at which they had sold, in free competition, in Macy's prior to price-fixing.

—In LIQUORS, 168 articles were raised, by reason of price-fixing, an average of 12.4% above the prices at which they had sold, in free competition, in Macy's prior to price-fixing.

—in BOOKS, 709 titles were raised, by reason of price-fixing, an average of 17.4% above the prices at which they had sold, in free competition, in Macy's prior to price-fixing.

—in MISCELLANEOUS ARTICLES, 241 were raised, by reason of price-fixing, an average of 20.2% above the prices at which they had sold, in free competition, in Macy's prior to price-fixing.

THE whole total of 2602 articles is relatively small in a store which regularly offers over 300,000 different articles. It is small, but it is significant of the inroads which *may* be made upon the consumer pocketbook if *national price-fixing* inroads.

It will not spread if most manufacturers continue to refuse to make their products harder for the consumer to buy.

It will not spread if the consumer declines to pay fixed prices.

It will not spread if retail stores continue to offer you wide assortments of goods not price-fixed—both sound national brands and sound private brands.

It will *not* spread as more and more independent retailers discover that they may have been "taken in" by laws which prevent the customer from buying freely, in natural competition—on the consumer has always bought and probably always will.

It will not spread as more and more retailers realize that laws that promise to "yield a higher percentage of profit" cannot make good if they actually reduce the number of articles the consumer can "afford."

But the proponents of price-fixing evidently won't stop trying just yet:

The advertisement below from the trade-paper *Drug Topics*, August 23, 1937, wasn't intended for the consumer's eyes, but it is a straw to show where the wind blows:

Because Macy's has no quarrel with any individual manufacturer, we have omitted the name of the manufacturer who ran this advertisement.

READ EVERY WORD OF THIS ADVERTISEMENT RUN BY A SENTINICK MANER ON GOOD TOPICS. AUG. 21, 1937

[illegible]

THE BIG DISTRIBUTORS

... of whom Macy's is one of the biggest, see in price-fixing a threat to their own methods of making sales and building profits. CU has no intention of aligning itself on the side of these methods against the small business man. But price-fixing is vulnerable from many angles; and such aspects of it as Macy's points up in the advertisement above deserve to be noted by consumers. The manufacturer who signed the \$25,000 check is The Pepsodent Co.

CONGRESS looked like a cinch, but the President was tougher. In the last week of April, he set his foot down and told his lieutenants to sidetrack the measure. He did this on the advice of (1) the Federal Trade Commission, which rightly told him that it was "most untimely to legalize any

... marketing practice calculated to facilitate increases in the cost of numerous . . . articles"; and (2) Treasury Secretary Morgenthau, who saw that the distillers, for whose good conduct he is responsible, were eagerly and openly using the fair-trade laws to effect a price conspiracy.

The FTC had seen that, too; its action against Seagram, Schenley, National Distillers, and others is still pending.

Senator Tydings, who sponsored the N.A.R.D. bill and whose former law partner is a legal counsel for the association, had to accept the Presidential decision for the time being, but toward the end of the session when the District of Columbia appropriation bill came along—a bill that just had to go through—he tacked the price-fixing measure on as a rider and got it by both houses.

It went to the President for signature, and if he had vetoed it then there still would have been time to prepare another District bill without the rider. Nobody knows quite why he waited until it was too late, but by holding off for almost two weeks he was able to denounce the vicious practice of attaching riders to bills and yet sign the measure because there wasn't time to do anything else.

One explanation of the President's tactics is that he felt the Miller-Tydings bill would eventually get through on its own anyway, and so decided to cut short the agony. Another is that he had no real objection to the bill.

HOWEVER that may be, fair trade has gone national now, and the National Association of Retail Drug-gists expect to take things in hand.

Heretofore, it has had to let the local state associations run things, but from now on it expects to call the tunes, to see to it that any manufacturer who sets prices sets them in all 42 fair-trade states, not just where the biggest pressure can be brought to bear.

Dozens of other associations in dozens of other retailing divisions have similar aspirations. In liquor and books they have worked almost as effectively as the N.A.R.D. has in drugs. Soon the price-raising effects of the fair-trade laws will be felt by consumers in virtually every line of trademarked merchandise. In tires and auto accessories, in electrical appliances and radio sets, in sports equipment, jewelry and clothing of all types, in building and plumbing supplies, in gift merchandise, in tobacco.

The grocery trade, dominated to a much greater extent by price-cutting chains and supermarkets, isn't much

A Call to Battle

PRICE-FIXING will eventually fall of its own weight and its own economic fallacies. But interested business will seek to postpone the day as long as possible. And meanwhile—now that price-fixing at the retail end has been put through—price-fixing among manufacturers, with further boosts in profits at the expense of consumers, is the next logical step.

The best protection against the spread of price-fixing is a determined fight against present price-fixing under the Miller-Tydings act. CU urges its members to contribute as much as they possibly can to this fight, and here suggests some steps.

Consumers and consumer organizations should demand repeal of the Miller-Tydings act at the next session of Congress.

Insofar as possible, consumers should avoid buying price-fixed products and should write manufacturers that they are doing so. Where a choice can be made between a non-price-fixed brand and a price-fixed brand, within the bounds of acceptable quality, consumers should buy the former.

An amazingly large percentage of price-fixed products in the drug field are worthless, or nearly worthless. Nobody needs to buy *Listerine*, or any other high-priced mouthwash. A plain salt or bicarbonate of soda solution will do exactly as well, at much less cost.

Flavored precipitated chalk can be used just as effectively as price-fixed toothpaste, and much less expensively. Many similar substitutions can be made by the consumer, at no loss to himself.

Consumers will do well to make a careful study of price-fixed products to see if they cannot eliminate many of them. Toward this end Consumers Union will report from time to time on particular price-fixed products.

Remember that the best way to stop price-fixing is to stop buying price-fixed goods.

interested—yet—in fair-trade laws or high fixed prices. But eventually, if the trend continues unchecked, price-fixing will move in there.

AND what will happen, as the price-fixers work their will with the trade of the country?

Costs of living will spurt forward rapidly. Make no mistake about it: the intent and purpose of the fair-trade law advocates in every field is to

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fatten their own take and the only way they can do that is by raising prices. What will happen, for instance, with Louis Trywusch's baby foods?

If they are fast-movers and have been subjected to much price competition, the Fair Trade Committee will arrange with the manufacturers for a minimum price yielding a 39% markup or profit on the cost. Thus, if the wholesaler's price on *Ovaltine* is 49c, the minimum retail price acceptable to the Fair Trade Committee would be 68c.

If *Ovaltine*'s sales just about fit into the pace of the average drug-store item, the committee will stipulate a markup of 50%. That would mean 74c at retail. And if *Ovaltine* were a slow-mover the committee would expect a retail minimum allowing for a 66 2/3% markup. That would mean 82c at retail.

Remember that Louis Trywusch, and plenty of other retailers, have been selling *Ovaltine* for under 50c—way under the cheapest of the prices at which it is likely legally to be sold after the Fair Trade Committee has had its little talk with *Ovaltine*'s makers. And remember that *Ovaltine* is simply one of thousands of products thus affected.

Does Louis Trywusch need a markup of 66 2/3%, or 50%, or 39%, to insure himself a profit? It is possible that a few Louis Trywusches do; but thousands of him do not. Can a suitable markup be applied arbitrarily to cover efficient stores as well as inefficient, big as well as little, city as well as country? Obviously not.

Does labor benefit in higher wages when retailers get these high, guaranteed markups? The record does not show that it does; labor's benefits are in direct ratio to its degree of organization, price-fixing or no price-fixing.

SPEAKING recently before the American Pharmaceutical Association, Samuel Shkolnik, counsel for the Illinois division, made price-fixing about as clear as it can be made. Counsel Shkolnik pointed out that agricultural and industrial tariffs had been passed to aid the farmer and the manufacturer at the cost of higher prices; and why, he asked, shouldn't the independent merchant be similarly subsidized?

Indeed, why not? The grab bag has been opened. Only the consumer suffers.

CU's tests of 27 silk and rayon

WOMEN'S SLIPS

show how fit, design and work-
manship determine wearing quality



SLIPS are year-round necessities in most women's wardrobes. Here, as in no other type of women's clothing, style is reduced to a relatively limited choice of fabric, cut, and trimming, and satisfactory service is of paramount importance.

What makes one slip last a "lifetime" and another wear out in two months? To find out the answers CU tested 27 rayon and silk slips. Because of the many brands available, and the preponderance of silk and rayon slips, no cottons were tested. The project included 8 knit slips and one straight-cut and 18 bias-cut slips, in crepe, satin, and taffeta weaves; 15 of these were rayon, 2 were mixtures of silk and rayon, 5 were weighted silks, and 5 were pure-dye silks; prices ranged from 69c to \$2.98. No lace-trimmed models were included.

Although some of the rayons had very good tensile strength, tests of fabric and seams showed that most of them were inferior to the silks. Seams, it was shown by the tests, are stronger when fabrics are joined on bias cuts; seams along the straight of the goods are apt to pull out more easily due to thread slippage. Most bias-cut slips have diamond-shaped insets at the bust. Thus, while the side seams are joined on bias cuts, the bust seams are sewed along the straight of the goods and, if the material has bad thread slippage, may pull out easily. This type of rip can scarcely ever be satisfactorily mended.

One-third of the woven slips showed bad slippage. And this shifting of the threads, causing a blistered appearance, is one of the major defects of much women's underwear, even in the higher price lines.

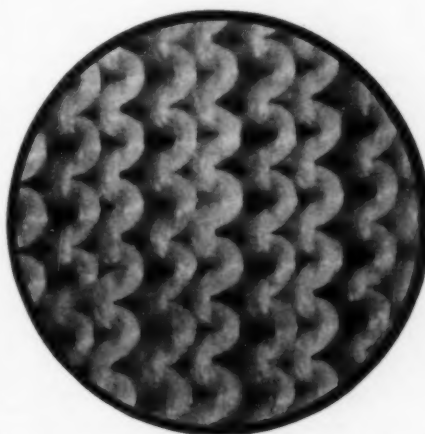
Shrinkage was slight on most of the woven slips; it was considerable on the knit slips, but they can be stretched back to size easily.

The Cover Picture

... shows one way to test for weighting in silk. Pure silk, with little or no weighting in it, burns down into small, globular lumps. Heavily weighted silk simply blackens.



Fabric knit like this on the back won't run



Fabric knit like this on the back will run

MAGNIFICATION 10X

KNIT slips are growing in popularity, chiefly because of ingenious methods of cutting and fitting through the bust and waist which eliminate much of the sagging of the old tubular styles. The only important drawback which remains is the tendency of the knit fabric to stretch out of shape in wear. The old-type plain knit slips, in which runs are frequent, are probably not worth buying. Newer tricot and milanese knits do not run, although when loosely knit tricots are snagged, a horizontal "pull" results.

So far as strength of fabric and seams go, a \$1.95 non-run knit slip should give better service than the general run of \$1.95 woven silk slips.

Silk will not lose strength when wet, as all rayon does, and it has greater elasticity than rayon. But the best quality of rayon is much cheaper than silk, and in order to meet the competition, especially in the depression, silk manufacturers have resorted to methods of cheapening their goods.

One of the most popular devices, though by no means a new one, is the weighting of light silks with tin or lead salts to give them a heavy feel. Such weighting reduces elasticity, tensile strength, and the resistance of the fabric to perspiration. Ruth Brindze, in "How to Spend Money," cites experiments in which "... pure-dye silks, after 174 days' exposure to indoor daylight, were still strong ... 63-68% weighted silks ceased to have measurable breaking strength after 22 days."

It is possible, furthermore, that cloth loaded with lead may be a contributory cause of lead poisoning. While this has not been definitely proved, some retailers, including R. H. Macy and Sears Roebuck, refuse to handle lead-weighted fabrics. The only possible excuse for weighting silks at all (other than that they bring

good prices from short-sighted consumers) is that a slight amount of weighting may overcome some tendency of the fabric to shift.

A GREAT deal of confusion has existed for the last ten years over the identification to consumers of the various types of rayon. There are four types: (a) nitro-cellulose, no longer used in this country; (b) viscose (*Spun-lo*, *Chardonize*, *Enka*); (c) cuprammonium (*Bemberg*); and (d) cellulose acetate (*Celanese*, *Acele*, *Seraceta*, *Eastman*).

All rayons are inferior to silk in that they have a low elasticity, will stretch out of shape when wet, and dry that way. Also, when wet they lose as much as 40% to 75% of their tensile strength.

On the other hand, they clean easily, because the fibers are smooth and do not hold dirt as tightly as natural fibers do; they resist abrasion well; they can be made up in any desired luster or dullness—and white rayons will not turn yellow with age as white silks do; they are not as badly affected as silk by light and perspiration.

Acetate rayons have a different chemical composition from the other two types and somewhat different properties. They are warm just as silk is, hold only half as much moisture, and dry more quickly than the non-

acetates. They are also stronger when wet than the other types of rayon. On the other hand, acetates must be ironed carefully, as a hot iron will actually melt the fabric, and they will dissolve in certain organic solvents including chloroform and the solvents contained in nail-polish remover.

A PROPER label on a slip should contain fiber identification, indication of weighting, a guaranteed minimum tensile strength, and some kind of guarantee covering shrinkage, fabric slippage, and satisfactory seam strength. Salesgirls in some department stores are now giving considerable information, especially about fiber content, weighting, and shrinkage. And many labels already in use are helpful.

Four of the five weighted slips were so marked—to be sure, “slightly weighted” turned out to be 31%; and another was marked “scientifically weighted and tested for long wear.” Four of the five pure-dye slips were labeled, and labeled correctly. The “Best Buy” acetate rayon slip from J. C. Penney carried the following simple and informative label: “Seraceta is a crown acetate rayon yarn. Use cool iron.”

But most labels and sales talk are vague and meaningless. Woolworth sells *Perfect Form* slips at 40c, 50c, 65c, and 75c; all of these are identi-

CONSUMERS UNION Reports

fied with tags which say “burst-proof seams.” The tensile strength machine needed only 13 pounds per inch, however, to pull apart the bust seam of the 75c model. “Genuine *Spun-lo*, the stabilized rayon fabric” tells the customer very little. It is guaranteed by *Good Housekeeping* to be run-resistant, which turned out on examination to be something much less than run-proof.

IT WILL prove helpful to check this list when buying any slip:

1. *Fit*. If possible, try it on. Does it fit smoothly, or does it bulge at the waist? Is the material cut on the true bias or with the true straight of the goods? If not, the skirt will hang unevenly. Is the skirt wide enough? Will it feel tight, ride up and twist when you sit down? Is it the correct length? If not, can it be adjusted easily? The hems of knit slips, and the tops of fitted slips are difficult to adjust if they do not fit right at first.

2. *Cut and design*. Look for adjusters on the straps and elastics to relieve the strain where the strap is sewed to the slip. Panels are desirable, particularly in thin materials. If the slip does not have a panel, hold it to the light to make sure it doesn't need one. Tailored slips generally wear better than lace-trimmed ones. Lace trimming on cheap slips may enhance their appearance but is usually of very

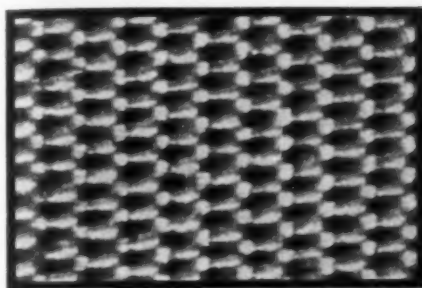
Woven Slips

BRAND	PRICE \$	WEIGHTING† %	TENSILE STRENGTH		MINIMUM SEAM STRENGTH		SLIPPAGE* RESISTANCE (LB. PER IN.)
			WARP (LB. PER IN.)	FILL (LB. PER IN.)	MAIN (LB. PER IN.)	BUST (LB. PER IN.)	
Barbizon Ritemore	1.65		56	63	66	20	29.0
Barbizon Bryn Mode	2.98		125	50	120	17	22.2
Seraceta .....	.98		59	46	35	23	22.0
Barbizon Shelby	2.25		73	32	46	20	17.2
Ward's No. —1204	2.25*		116	45	55	17	7.0
Yolande	2.95		83	32	36	none	9.5
Sears' No. —3684	1.95*	44	93	39	67	23	11.7
Rhythm	1.98	31	66	39	33	27	7.5
Twin Weaves	1.95	31	58	33	35	31	6.0
Luxite	1.09		38	38	41	17	10.1
Sears' No. —3672	1.59*		103	36	41	11	5.3
Loomcraft Taffaswish	1.09		96	48	38	10	5.5
Pur'di .....	.98		53	27	20	none	5.1
Seamprufe	1.98	31	67	33	32	21	5.3
Ward's No. —1200	1.69*	34	67	26	30	17	4.8
Perfect Form .....	.75		44	30	28	13	2.9
Loomcraft Satintone .....	.69		34	27	26	19	6.6
Princess Stride	1.19		45	30	29	5	3.3
Kayser	1.09		40	27	20	14	4.6

* The number of pounds which must be exerted per inch of fabric to make the threads slip ¼ in.

* Plus postage.

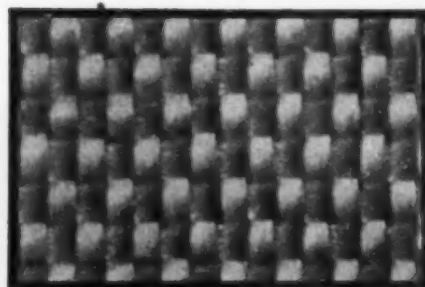
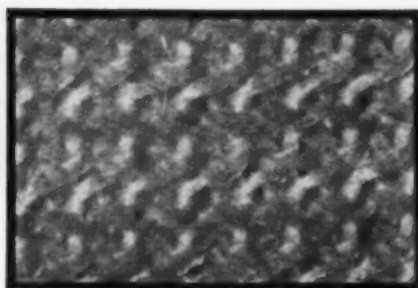
† The figure given is the per cent of mineral matter found in the material. No figures are listed which were below 3%, as these indicate only natural mineral residue in the fiber or finishing compounds, and not the presence of added weighting.



TAFFETA WEAVE

... of acetate—the warmest type of rayon

KNIT
... of cuprammonium—which generally has
the finest filaments



PLAIN WEAVE

... of viscose—the cheapest type of rayon

poor quality. If a lace-trimmed slip is bought, be sure that the straps are securely fastened to the fabric, not just to the lace.

3. *Sewing and construction.* Small, even lock stitches will be stronger than the long chain stitches which are fre-

quently used on cheap slips to economize on thread. The lock stitch, however, sometimes holds particles of dirt and makes a noticeable ridge. Machine-made slips are in general more durable than handmade at the same price.

Woven Slips

(All slips of bias cut unless otherwise noted)

Best Buys

Barbizon Ritemore* (Garfinkel and Ritter, NYC). \$1.65. Viscose rayon. 4-gore style; double-thickness bust inserts front and back; short, non-elastic straps; no shadow panel. Very good fit and hang. Sold as silk though labeled "rayon." Best quality of all the rayon slips covered in the tests.

Barbizon Bryn Mode.* \$2.98. Pure-dye silk satin. Same cut and style as *Ritemore*. A 2-gore style is also available in the same fabric. Best quality of the silk slips.

Seraceta (Sold by J. C. Penney Stores; fabric made by the Viscose Company, Marcus Hook, Pa.). 98c. Acetate rayon taffeta. Double-thickness front inserts; non-elastic straps; no panel.

Barbizon Shelby.* \$2.25. Pure-dye silk crepe. 2-gore style; double-thickness front inserts; short, non-elastic straps. Shadow panel in the front.

Ward's Cat. No.—1204 (Montgomery Ward). \$2.25 plus postage. Pure-dye silk satin. Double-thickness front and back inserts; non-elastic straps; no shadow panel.

Also Acceptable

Yolande (Lande and Miskend Co., NYC). \$2.95. Pure-dye silk crepe. No inserts at top, but well fitted; non-elastic, non-adjustable straps. A well made, hand-sewn garment with satisfactory durability, but not as good as machine-made at the same price.

Sears' Satin Secretè Cat. No.—3684 (Sears Roebuck). \$1.95 plus postage. Weighted silk satin. Double-thickness front inserts; non-elastic straps; no panel.

Rhythm (Patricia Petticoat Co., Inc., NYC). \$1.98. Available in J. C. Penney stores and in department stores. Weighted silk crepe. Double-thickness inserts front and back; elastic in straps; full-width shadow panel in front.

Twin Weaves (Holland-Hessol Co., Inc., NYC). \$1.95. Weighted silk crepe. Full-width shadow panel in front; double-thickness front inserts; non-elastic straps.

Luxite (Luxite Silk Products Co.). \$1.09. Viscose rayon. Double-thickness inserts front and back; non-elastic straps; 4-gore style; no panel.

Not Acceptable

Sears' Cat. No.—3672. \$1.59 plus postage. Pure-dye silk satin. Dou-

ble-thickness front inserts; non-elastic straps; no panel. Acceptable except for bad thread slippage.

Loomcraft Taffaswish (I. Schneierson & Son, NYC). \$1.09. Viscose rayon. 4-gore style; non-elastic straps; no panel. Acceptable except for bad thread slippage.

Pur'di (sold in F. W. Grand stores; distributed by H. Kluger, Inc., NYC). 98c. Combination of viscose rayon and pure-dye silk crepe. No inserts; fair fit; non-elastic straps. Sold as silk. The FTC has declared this trade name misleading. Acceptable except for bad thread slippage.

Seamprufe (Aronson-Caplin Co., Inc., NYC). \$1.98. Weighted silk crepe. Athletic type skirt; double-thickness inserts front and back; elastic section in straps. Acceptable except for bad thread slippage.

Ward's Cat. No.—1200. \$1.69 plus postage. Weighted silk crepe. Tapered shadow panel; double-thickness front and back inserts; non-elastic straps. Not acceptable because of low tensile strength and bad thread slippage.

Perfect Form (F. W. Woolworth stores). 75c. Viscose rayon. Double-thickness front inserts; non-elastic straps. Not acceptable because of very low tensile strength and bad thread slippage.

Loomcraft Satintone (I. Schneierson & Son). 69c. Similar garments found in various stores ranging in price to \$1.09. Viscose rayon. Non-elastic straps. Poor fit. Not acceptable because of very low tensile strength.

Princess Stride (fabric by Pepperell Mfg. Co.; slip made by M. C. Shrank Co., NYC). \$1.19. Straight-cut viscose rayon. Athletic type skirt; non-elastic straps. Poor fit. Not acceptable because of very low

* Barbizon slips are available from Co-operative Distributors, 114 E. 16th St., NYC, at the above prices postpaid to any part of the United States.

Knit Slips

BRAND	PRICE \$	BURSTING STRENGTH (LB.)	MINIMUM SEAM STRENGTH (LB. PER IN.)	% SHRINKAGE	
				VERT.	HORIZ.
Luxite Your Highness	2.00	63	61	3	3
Miss Vanity	2.00	64	68	10	0
Van Raalte VR-Tex	1.95	68	58	18	8
Kayser	2.00	62	54	12	0
Chanda	1.83	53	50	14	6
Kayser Cordials	1.50	53	47	10	12
Spun-lo	1.00	66	68	7	7% stretch
Munsingwear	1.25	72	69	9	0

(Woven Slips, Cont'd)

tensile and seam strength, and bad thread slippage.

Kayser (Kayser & Co.). \$1.09. Viscose rayon. Full-width shadow

panel; double-thickness front inserts; non-elastic straps. Not acceptable because of very low tensile strength.

Knit Slips

Best Buys

Luxite Your Highness (Luxite Silk Products Co., Milwaukee, Wis.). \$2. Viscose rayon. Shadow panel in front; elastic in straps. Salesgirl claimed it was silk and rayon.

Miss Vanity (Vanity Fair Silk Mills, Reading, Pa.). \$2. Cuprammonium rayon. Shadow panel in front; elastic in straps. Called "silk and rayon" by salesgirl.

Also Acceptable

Van Raalte VR-Tex (Van Raalte Co., Inc., NYC). \$1.95. Combination of viscose rayon and pure-dye silk. Shadow panel in back; non-elastic straps.

Kayser No. 6312/2 (Julius Kayser & Co., NYC). \$2. Combination of lustrous and de-lustered viscose rayon. Shadow panel in front; non-elastic straps. Represented by salesgirl as silk and rayon.

Chanda (R. H. Macy, NYC). \$1.83. Cuprammonium rayon. Non-elastic straps; "bra" top with double-thickness fabric; shadow panel in back.

Kayser Cordials (Kayser & Co., NYC). \$1.50. Viscose rayon. Shadow panel in front; non-elastic straps; double-thickness "bra" top. Skirt somewhat narrow.

Not Acceptable

Spun-lo (Industrial Rayon Corp., Cleveland, Ohio). \$1. Not runproof. Viscose rayon. "Bra" top; full-length shadow panel from diaphragm band; elastic section in straps; straps left unattached to permit adjustment.

Munsingwear (Munsingwear Corp., Minneapolis, Minn.). \$1.25. Not runproof. Viscose rayon. Front and back alike, except for shadow panel; non-elastic straps. No fitting at top. Rather sloppy fit.

Information on the following brands of slips was supplied by Mr. Green and by the Textile Workers Organizing Committee (TWOC).

Barbizon—Union-made.

Chanda—The manufacturer of this R. H. Macy brand is not known to the ILGWU.

Kayser—Non-union.

Loomcraft—Union-made.

Luxite—Non-union.

Munsingwear—Union-made.

Perfect Form—No data on the manufacturer of this Woolworth brand.

Princess Stride—Labor conditions not known.

Pur'di—H. Kluger, who uses this brand name, is a converter, not a manufacturer. The TWOC reports that most of the manufacturers from whom H. Kluger buys have unionized shops, paying the prevailing wages.

Rhythm—Union-made.

Seamprufe—Non-union.

Seraceta—At least the fiber for this Penney product is made under union conditions by the Viscose Co., Marcus Hook, Pa. The TWOC reports that wages are fair and the work week is 40 hours.

Spun-lo—Both fiber and fabric for this brand are made by the Industrial Rayon Corp., which operates plants in Cleveland, Ohio, and Covington, Va. Employees are on strike; and the National Labor Relations Board, after determining that the "Employees' Association of Industrial Rayon Corporation" was a company union, has ordered an election to find out whether the workers wish to be represented by TWOC. Indications are that the manufacturer is strongly anxious to evade the obligation to bargain with a bona fide trade union.

Twin Weaves—Union-made.

Van Raalte—Non-union.

Vanity Fair—Non-union.

Yolande—Union-made.

Women's Slips—Who Makes Them?

UNION-MADE slips are increasingly being identified by the label of the International Ladies' Garment Workers' Union, sewn to each garment. Women who purchase these garments may be sure not only that they were made by fairly treated workmen but that they were produced under sanitary conditions. Contracts between slip manufacturers and the ILGWU include rules of sanitation.

In New York City, according to Charles H. Green, director of the union

label department of the ILGWU, the minimum wage for organized workers is \$18.90 a week for rayons and \$22.05 for silks. The work week is 37½ hours. Outside of New York, working hours are usually the same and wages tend to be somewhat lower. They do not, however, get down anywhere near the lower depths reached by the pay in non-union plants, in some of which workers get \$8 a week and even less as their stake in the American standard of living.

Oils for Household Use



3-In-One ("Not Acceptable"): 1 oz., 10c—Visco ("Best Buy"): 4 oz., 10c

The majority of brands tested were satisfactory. The most advertised brand was not

THE majority of seven brands of household oils tested by CU were found to be satisfactory. But the well advertised *Three In One* was excessively acidic as well as grossly overpriced. Montgomery Ward's oil also showed excess acidity.

Household lubricating oils are used for a great variety of purposes and at varying temperatures. Consequently, the less change of viscosity (rate of flow) with change of temperature, the more satisfactory the oil will be. Only two oils, *Three In One* and *Sears' Cross Country*, were unsatisfactory on this count.

A person who uses very much household oil can save money by making his own at home. Mix one part (by volume) of kerosene with four parts of an SAE 10 motor oil. The oil used should be a 100% paraffin base oil (for ratings of SAE 10 oils see the report on winter motor oils in this issue and the 1937 *Buying Guide*, pages 139-40).

Except for the *Singer* and the mail-order brands, the oils listed below are available at most ten-cent stores as well as elsewhere.

Best Buys

Mixture of one part kerosene with four parts SAE 10 100% paraffin base motor oil. Approx. 0.6c per oz.

Singer Oil in qt. can (Singer Sewing Machine stores). 1.3c per oz.

Visco Household Oil (Visco Chemical Products Co., Cleveland). 2.5c per oz.

Ever-Ready Machine Oil (Ever-Ready Co., NYC). 2.5c per oz.

Nye's Finest Machine and Household Utility Oil (Wm. F. Nye, Inc., New Bedford, Mass.). 2.5c per oz.

Also Acceptable

Singer Oil in 3-oz. can. 6.7c per oz.

Not Acceptable

Ward's Fine Machine Oil (Montgomery Ward). Too acidic for safety in general use.

Sears' Cross Country General Purpose Oil (Sears Roebuck). Too great change of viscosity with temperature.

3-In-One (Three In One Oil Co., NYC). Too great change of viscosity with temperature. Too acidic for safety.

FACT or FABLE?

This is a game for consumers and an educational test as well. Mark the following statements true or false. Then see page 28 for answers.

If you get 8 or more right you can give yourself an A.

- 1. It is not advisable to take laxatives steadily, but using them for a regular monthly purge of the intestines is beneficial.
- 2. Corrosion will shorten the life of even the best washing machines if you use strongly alkaline laundry soaps and washing powders.
- 3. Self-rising cake flour should not be used because:
 - a. Its leavening properties cannot be controlled.
 - b. It may explode if it stands too long.
 - c. It costs more than ordinary cake flour.
 - d. It almost always contains alum baking powder.
 - e. It causes halitosis.
- 4. If you use the larger sizes of coal in your furnace you will save money because you will need less coal.
- 5. No known preparation can be relied on either to prevent a cold, cure a cold, or shorten the duration of a cold.
- 6. Metal radio tubes have been perfected so that they are now definitely superior to the glass tubes.
- 7. Blankets sold as part-wool contain at least 25% wool.
- 8. Rubbers with unlined uppers are both stronger and more comfortable than rubbers with cloth linings.
- 9. Practically all commercial antifreezes contain some substance to retard rust.
- 10. The amount of sizing in a sheet doesn't have any effect on wearing quality.

AUTOMOBILE RADIOS

A technical report on 12 models, rated both for quality without regard to price and for value per \$. With a note on antennas.

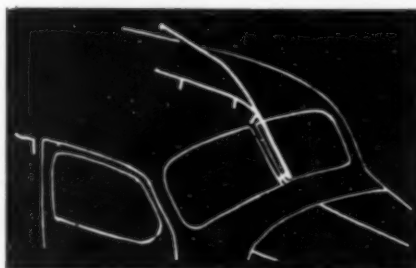


THE efforts of the manufacturers of automobile radios have been aimed in two directions during the past few years. A prodigious amount of energy has been expended in the creation of new names—"acoustinator," "magic eliminode," "phantom filter," "geographical compensator," "automatic eliminoise"—for such familiar devices as tone controls, antenna couplers, filter systems and sensitivity controls. Fortunately, some attention has been given the improvement of both sets and installations, with the result that the auto radios of 1937-38 are definitely better sets than those of only a few years back.

Auto radios today are generally accepted despite various legislative efforts to make them illegal on the grounds that they contribute to driving hazards. It has been argued that listening to a radio distracts the attention of the driver from the serious business of keeping his car where it belongs. Also, the radio controls have been looked on as a secondary cause of one-arm driving.

The radio industry, on the other hand, has claimed that auto radios make for safer driving. Radio trade papers insist that drivers who customarily ricochet along at 65 miles per hour will be soothed, like other savage beasts, by music, and drop their speed to 25 miles per hour.

In point of fact, not much is known about the actual effect of a car radio on one's driving technique. It is probably true for most persons that musical programs require little of the driver's attention. Listening to mystery thrillers, news flashes, speeches, and such will take considerably more concentration on the driver's part, and may prove too great a distraction for really safe driving. The driver should bear in mind at all times that his primary responsibility is for the safe operation of his car.



DRAWINGS BY ARNOLD BLACK

TOPPER

THE improvements noticeable in 1937-38 automobile radios over those of only a couple of years back center mainly around noise reduction, sensitivity, tone quality, lowered battery drain, and compactness.

Noise reduction has been achieved largely through improved design, which has meant (1) filters and bucking systems such as the "magic eliminode" on the *Motorola*, and (2) the placing of the on-off switch on the control panel (it used to be cable-operated from the receiver unit where it provided a perfect path for interference strays into the set).

As a result of these measures, individual spark-plug suppressors are no longer required—though a suppressor at the distributor head and a condenser in the generator circuit are still universally employed where possible. Superior antenna systems, including the antenna proper, lead-in, and coupling arrangements, have also contributed to noise reduction.

Increased sensitivity is due to general improvement in design, to dual-purpose tubes (which perform the functions of two or three tubes with some efficiency), and, so far as effect goes, to the improved antenna system.

Tonal quality has gained from the inclusion of relatively high-power output tubes and the use, in some installations, of two speakers—one usually mounted in the set, with a header-type

speaker placed elsewhere in the car. This arrangement gives an illusion of auditory perspective, and provides at the same time some tonal advantages. Inasmuch as tone quality is limited by the acoustics of the car, however, reception in this respect will probably never equal that of a first-class home radio.

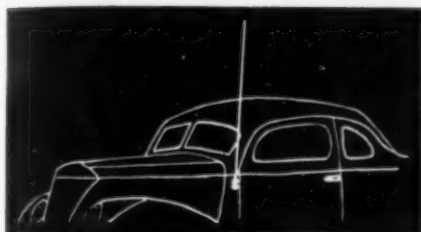
The factors in the lowered battery drain of current models are dual-purpose tubes and permanent-magnet dynamic speakers using no current or else low current drain dynamic-type speakers. Drains on the battery vary from 4.5 to 9.2 amperes in late models, which, to be sure, still puts a load on the battery that will shorten its life.

The added load is compensated for in many modern cars by increased charging rate or automatic voltage regulation. But wear and tear on the battery still exists, and its life, on the average, will be shortened by months, even on cars equipped with voltage regulation. Over-size batteries will last longer, of course, but since they cost more, net outlay is about the same.

The greater compactness of new models is not an unmixed blessing; it means extra complications from the service angle. *Arvin* radios are definitely the easiest to service of all those tested by CU's technicians. Most service operations can be performed on this set without its being removed from the car, a procedure which requires considerable time and labor for which the customer must pay. *Arvin* radios may cost the average owner about \$2 a year less for servicing than other comparable models tested.

THERE are about a dozen different types and styles of automotive radio aerials, three of which are worthy of recommendation (in the order named):

- (1) the type which projects up and over the center of the top



BUGGY-WHIP

- (2) the buggy-whip design (usually fastened to a door hinge)
- (3) the fish-pole (attached to the rear bumper).

For best results the aerial should have good clearance of the car. Thus, a top-type antenna that hugs the body within an inch or two for its entire length will probably not be as good as a fish-pole or buggy-whip design. Bumper aeriels (in which the bumper is insulated from the frame of the car and acts as an antenna) and under-car or running-board antennas will rarely give results comparable with the recommended types. Aside from mechanical complications, the pick-up is usually inadequate except for static from the wheels and brakes.

The pick-up of the three recommended designs is excellent, but the top type is located farthest from any ignition-noise-conducting circuit. For this reason it is the best to use with a late model Ford, as the design of the distributor on these cars is such that a suppressor cannot be used. On other cars there is little choice, aside from personal preference, between the top type and the buggy-whip. As previously indicated, the top type should be so designed that some portion of the antenna is at a reasonable height above the top of the car. This is usually accomplished by means of a rod or curlicue extending upward.

The fish-pole antenna may pick up some noise from the tail light, stop light and gas-gauge circuits. Other things being equal, it should be mounted on that side of the bumper providing the greater isolation from such circuits.

Automobile radios are considerably more difficult to install than home radios. It will be best for the layman to call in an auto radio expert. Installation and servicing are specialized fields, and as a rule only the specialist can get the most out of a set.

THE following quality-price ratings are based on manufacturers' list prices. Most makes are available, especially in large cities and in chain stores, at cut prices. Since discounts cannot be had for the mail-order brands, the Sears' set, for instance, will compare less favorably with other brands when these are available at cut prices. Moreover, dealers quote varying charges for installation. Careful study of the quality ranking (page 14) as related to local prices and the full listings below should be sufficient to assure a satisfactory purchase at the maximum saving.

Best Buy

Sears' Silvertone Spring-Summer, 1937 Cat. No.—4601 (Sears Roebuck). \$32.95 plus shipping charges, complete with tubes and separate speaker. Special control panels available to match various cars at 24c to 85c. 7 octal-base glass tubes, including 2 dual-purpose tubes and rectifier. Frequency range, 540 to 1,540 kilocycles. Will not receive those special high-fidelity stations, such as WQXR of New York City, operating at 1,550 kc. or higher. Rated output, 12 watts (speaker overloads at anywhere near this output, but distortionless output is quite adequate for any car). Continuously variable tone control. Off-on switch on control unit—where it belongs.

Diagram calls for sensitivity control, but there was none on the model purchased, the receiver being set for maximum sensitivity. This is satisfactory, and is standard practice with Philco. The noise-reducing effect of variable sensitivity in an auto radio is grossly exaggerated.

This receiver offers very satisfactory performance for its low price. In all operating respects—sensitivity, selectivity, tone quality—it com-



FISH POLE

The Wise Man and the Other Fellow

Applaud the young man from
East Baving
Who bought a new cream for
his shaving;
Since CU's researches
Determined his purchase,
He got a good buy at a saving.

But pity the person from Pew
Who never had heard of CU;
The cream that he bought
Was most horribly fraught
With poisons and profits and
glue.

Moral:

He who reads before he pays
Will live to buy on other days.

GIFT MEMBERSHIP BLANK

(The blank on the reverse of this is for your own use, if you are not yourself a member.)

To: Consumers Union of U. S., Inc. 55 Vandam Street, New York, N. Y.
I wish to make a gift of a membership in Consumers Union. I enclose:
☐ \$3 for 1 year's membership, \$2.50 of which is for a year's subscription to the complete edition of Consumers Union Reports and the Annual Buying Guide.

The membership is to be entered for:

Name.....
Address.....
City and State.....
My name is.....
My address.....

pares favorably with the *Arvin* Model 29. While the workmanship is somewhat inferior to that of the *Arvin* and some other more expensive makes, the *Silvertone* is well made, and there is no reason to suspect that it will not give excellent service. The current drain is somewhat high at 8.25 amperes.

Acceptable

Motorola Model 45 (Galvin Mfg. Corp., Chicago). Complete with 6 glass tubes, including rectifier, \$39.95. Frequency range, 535 to 1,600 kilocycles. Tone control but no sensitivity control (see remarks on *Silvertone*). Output is adequate at 4 watts to a 6-in. dynamic speaker built in the receiver unit. Current drain low at 6 amperes.

Specifications vary on some of these models and some sets do incorporate sensitivity control. The receiver is well made, enjoys an excellent reputation in the trade, and

individual units tested by CU have been satisfactory.

Arvin Model 19 (Noblitt-Sparks Industries, Inc., Columbus, Ind.). \$39.95 with 6 glass tubes, including rectifier. Frequency range, 540 to 1,575 kilocycles. No tone control. Output adequate at 3.5 watts to a 6-in. built-in dynamic speaker. Current drain, 6.1 amperes. Both this receiver and the *Philco Transitone* Model 826 below are judged to offer considerably less value for the money than *Silvertone* above.

Philco Transitone Model 826 (Transitone Automobile Radio Corp., Philadelphia). \$42.95 with 6 tubes, including rectifier. Frequency range, 530 to 1,550 kilocycles. Output power rather low. 6-in. built-in dynamic speaker. Current drain, 6 amperes. See note under *Arvin* Model 19, above.

The three sets listed immediately below reveal very little difference in value.

Arvin Model 29. The price on the Model 29 with 6 octal-base glass tubes varies from \$49.95 (for the receiver with integral speaker, and tone control on the receiver) to \$54.95 (for an external 8-in. speaker and the tone control mounted on the dash). All *Arvin* automobile receivers are sold on the unit basis; that is, any one of their three fundamental models can be purchased, with a variety of speaker combinations, with or without dash tone control, etc. Tuning range, 540 to 1,575 kilocycles. Output, 4.5 watts. Current drain, 6.7 amperes.

Sensitivity control is adjusted by means of a screw-driver, and is usually set on installation either at or near maximum, depending on where most of one's driving is to be done. This permanent adjustment is satisfactory, as mentioned under *Silvertone*. All *Arvin* automobile radios are equipped with the "Phantom Filter," an antenna-coupling device which contributes somewhat to sensitivity on the low-frequency end and gives somewhat less background noise. The ease of servicing these sets has already been mentioned.

Motorola Model 65. Complete with 6 glass tubes, \$49.95. Frequency range, 535 to 1,600 kilocycles.

CONSUMERS UNION Reports

Quality Rankings

ACCCEPTABLE models of automobile radios tested by CU may be ranked from the standpoint of performance alone (without regard for price) in the following order:

Motorola "Golden Voice" \$69.50
Arvin Model 39 54.95
Philco Transitone Model
828 59.95

The three sets immediately below are about equal in performance:

Arvin Model 29 49.95
Motorola Model 65 49.95
Philco Transitone Model
827 52.95
Sears' Model 4601 32.95
(plus postage)
Motorola Model 45 39.95
Arvin Model 19 39.95
Philco Transitone Model
826 42.95

The de luxe models available in several of these brands usually have exactly the same chassis, with additional features such as larger or extension speakers with possibly better tone quality, more convenient tone controls, and knob instead of screw-driver adjustment for sensitivity controls (not important). With the exception of tone quality, performance will be that of the corresponding standard model.

Power output, 5 watts to an 8-in. built-in dynamic speaker. Current drain, 6.4 amperes. This receiver is equipped with tone and sensitivity controls mounted on the control unit.

Philco Transitone Model 827. Complete with 6 glass *Philco* tubes; \$52.95. The same receiver (Model 827K) can be had with a 9-in. separate speaker for \$59.95. However, the preferable buy in the *Philco* line at that price level is the Model 828 below. Frequency range, 530 to 1,550 kilocycles. Power output, 2.5 watts, is somewhat low, but adequate with the efficient 6-in. dynamic speaker. Current drain, 6.4 amperes. No sensitivity control. Tone control mounted on the receiver.

Arvin Model 39. \$54.95 with minimum accessories, including overhead speaker and 7 octal-base glass tubes. \$59.95 with de luxe equipment, including tone control on dash

PERSONAL MEMBERSHIP BLANK

(The blank on the reverse of this may be used for a gift membership, if you are now a member.)

To: Consumers Union of U. S., Inc.
55 Vandam Street, New York, N. Y.

I hereby apply for membership in Consumers Union. I enclose:

☐ \$3 for 1 year's membership, \$2.50 of which is for a year's subscription to the complete edition of Consumers Union Reports and the Annual Buying Guide.

☐ \$5 for 1 year's membership and subscription plus a contribution toward a permanent consumers laboratory.

I agree to keep confidential all material which is so designated.

Name.....

Address.....

City and State.....

and an 8-in. speaker. Frequency range, 540 to 1,575 kilocycles. Current drain, 7.2 amperes. Output, 9 watts. Tone control on receiver. Sensitivity control adjustable with screw-driver.

Philco Transitone Model 828. Complete with 7 glass Philco tubes, \$59.95. Same frequency range and controls as Model 827. Output power, 4 watts to a 6-in. dynamic speaker. Current drain, 7.2 amperes. (Can be had as Model 828K with a 9-in. speaker for \$64.95, but the Arvin Model 39 with de luxe equipment is a better receiver.)

Motorola "Golden Voice" Model. Complete with 8 glass tubes, \$69.50. Frequency range, 535 to 1,600 kilocycles. Power output, 13 watts to a separate 8-in. permanent-magnet dynamic speaker. The same receiver can be had with a 10-in. permanent-magnet dynamic speaker for \$74.50. Current drain, 7.2 amperes. Tone and sensitivity controls mounted on the control unit.

Not Acceptable

Motorola Model 35. \$29.95 with 6 tubes, including rectifier. Output, 3 watts into a 5-in. built-in dynamic speaker. Current drain, 5¾ amperes. Frequency range same as Motorola Model 45 above. No tone control. Will give much less satisfactory performance than the 45.

Ward's Airline 1937 Special Radio Catalog No.—258 (Montgomery Ward). \$32.95 plus shipping charges, complete with 3 metal and 3 glass tubes. A synchronous vibrator rectifier makes this set the equivalent of a 7-tube receiver employing a rectifying tube. Tone and sensitivity controls mounted on receiver. On-off switch is within the set.

This receiver arrived for test in an inoperative condition. The trouble was finally located as an open by-pass condenser which had never been wired. Obviously the receiver had not been tested, or even carefully assembled and inspected.

Despite the fact that they save one tube, synchronous vibrators are rarely used in modern automobile radios. They are apt to develop noise, and need more frequent servicing than the generally used type of vibrator requiring a rectifier tube.

Excerpts from the News

How to Lose Money

WE WANT to direct your attention to a wonderful new book. We mean wonderful, too. It's called "The Shopping Guide" and it's a collection of little essays on how to shop written by 18 department-store buyers.

What sort of book do you think 18 department-store buyers would write? Well, we'll show you. We'll quote you a piece right out of the book:

"Really, a man ought to have from six to twelve hats in his wardrobe, not only because of the various colors required to harmonize with his clothes, but because of the popularity of sports and travel which require many different hats. . . . If you want to remain in style, don't wear the same hat too long. . . . Give your old hats away, and select new ones each season."

You can see for yourself that "The Shopping Guide" contains just the sort of advice the consumer so sorely needs. And it costs only \$2.50. For eight or nine hundred dollars a year you could probably follow all of the suggestions in it.

Waste in the Hospitals

HOSPITALS of the United States—most of which have a hard time making income equal expenses—waste millions of dollars every year by purchasing proprietary drug preparations instead of following standard pharmacopoeia formulas, the American Hospital Association was told last month at its convention in Atlantic City.

Dr. Edgar C. Hayhow, superintendent of the Paterson (N. J.) General Hospital and chairman of the association's committee on pharmacy, reported that many staff physicians were recommending a proprietary drug costing \$24.40, when the identical product in the standard formula cost only \$2.83. Other examples of the use of proprietary products costing 20 times as much as the standard formula were cited. Even more serious than the waste of money was the committee's finding that the proprietary preparations are often inferior in quality.

Apparently the doctors and the hospitals, who most certainly should know better, are as susceptible as the

layman to the high-pressure selling of the drug companies.

Prices in Merrie England

FOOD prices are rising more rapidly in England than in any other country in the world, according to Rose Smith, writing in *The Labour Monthly* (London) for August. In the six-month period ending last May, the cost of 4 lb. of sugar increased from 14c to 18c; 1 lb. cheese from 12c to 18c; ½ lb. butter from 9c to 12c; 1 doz. eggs from 20c to 24c. A selected list of household staples showed an average increase of 31.8%, November to May.

Meantime, it has been estimated that something like 20,000,000 Britishers are underfed. Fearing that the number will be greatly increased by the price rises and new taxes, the London Trades Council has called a conference of organized workers and their wives to plan a campaign for a higher permanent standard of living for all workers.

In our own country, retail food costs have risen steadily for the past year, and now stand higher than at any time since the beginning of 1931. A similar campaign on the part of organized American workers and consumers would seem to be indicated.

Standards and Specifications

THE Consumers' Project of the U. S. Department of Labor has issued two mimeographed bulletins which should be of special interest to educational, consumer, and cooperative groups.

One of these, "References and Summaries of Standards, Specifications and Test Methods for Selected Consumer Commodities," includes references to the standards and specifications of blankets, towels, cotton sheets and sheeting, hosiery, shoes, upholstery, mattresses, pillows, and electric refrigerators.

The other, "Specifications for Purchasing Canned Fruits and Vegetables," includes references to all the U. S. standards for grades of canned fruits and vegetables and gives detailed instructions for purchasing such goods by specifications.

Copies may be obtained from The Consumers' Project, U. S. Dept. of Labor, Washington, D. C.



PUFFED WHEAT

RICE KRISPIES

POST TOASTIES

Were Barnum still alive he would probably find . . .

AS WE go to press the batting average of Lou Gehrig is exactly .359, but his record as a breakfast cereal promoter is a trifle less impressive because of an unfortunate incident recently reported. Pausing in his professional work on the diamond to earn a few extra coppers on the radio program of General Foods' *Huskies*, Mr. Gehrig was asked by the announcer to name his favorite breakfast food.

"*Wheaties!*" said Mr. Gehrig promptly and with enthusiasm.

To any listening representative of the baseball star's former radio employer, General Mills (who make *Wheaties*), the testimonial must have seemed touching loyalty in an age when lifelong allegiance to one or another product is often transferred overnight by the mere signing of a check. To the sales manager for *Huskies*, Mr. Gehrig's little slip no doubt created a dreadful picture of thousands of boys and girls rushing to their mothers and raising a national chorus for *Wheaties*.

No one knows better than the cereal manufacturers that the actual virtues of their product have little or nothing to do with sales. Breakfast foods are generally sold today because they are indorsed by children's heroes from real life or the comic pages; or because a collection of package tops may be exchanged for a wide assortment of cheap prizes and premiums. Were Barnum still alive, he would probably find nothing more enjoyable and few things more profitable, than a career in cereals.

To name some of the sales come-ons: *Shredded Wheat* offers picture story cards for painting, Kellogg's corn flakes has "Exciting Adventure Stories" and model airplanes, *Sunnyfield* corn flakes provides attractions like automobile relay race cutouts, *Huskies* offers sports movies, Bobby Benson vouchers for the quality of *Force*, Shirley Temple says that *Quaker Puffed Wheat* is "my cereal," the Dionne girls give a quintuple indorsement of *Quaker Oats*, Mickey Mouse rings up sales for *Post Toasties*.

THE sturdy Scot used to take his oatmeal gruel regularly—and with no sugar or cream, either. For cereals were, and still are, a cheap source of calories, a cheap form of energy food. Few crops yield more calories per acre than the grains; few can be stored so long, with so little special handling.

But as foods, the refined cereals provide little except calories. They contain 65% to 90% carbohydrates. The protein content varies from 6% to 17%, being generally lowest in rice and corn and highest in oats, with barley and wheat between. In the whole grains are phosphorus, iron, and vitamin B, but most of these valuable elements are lost when the grain is refined to make farina, white flour, and polished rice.

These foods, with little to recommend them but their cheapness, have been made profitably expensive, however, by modern processing methods. And their expensive forms have been

BREAKFAST

. . . are not, as advertised, body-builders. They give energy—most of the elaborate sales stunt

ballyhooed by advertising into an item of daily diet for many millions. Wheat flakes—*Wheaties* and *Huskies*, for instance—cost nearly twice as much as uncooked *Pettijohn's* rolled whole wheat. And the *Puffed Wheat* that Shirley Temple loves so dearly costs nearly three times as much. Similar figures go for most of the other ready-to-eat products.

As for the relative costs of the various grains, oats are cheapest, corn next. Rice, both raw and processed, is very close to wheat in price.

Most advertisements emphasize the wonderful tastiness of these amazing creations of modern science. Not so much talking is done about the particular elements of nourishment left in the processed cereal. An honest advertisement on the place of cereals in the diet would read something like this: "Cereals are useful as a cheap source of carbohydrates, which supply the body with energy. The whole-grain cereals are, in addition, fair sources of minerals. *Twangled Oatsies* and *Kurley Krunchies* bring you this cheap food in a tasty but expensive form."

SINCE modern industry has succeeded in refining out of many cereal products the parts of the grain that carry the minerals and vitamins so essential in the diet, farina, polished rice, and similar products become actually harmful as major items of diet unless they are supplemented with rich sources of the vitamins and the minerals which they lack. For those whose incomes restrict them to low-cost menus, this is sometimes difficult.

Meanwhile, in contrast to the shortcomings of refined cereals, the virtues of the whole grains have been built up most astoundingly. Consumers have

FA CEREALS

ad, miracle-working
The cheap sources of
of made expensive by
es stund refining methods

been paying the manufacturers for removing valuable food elements in the first place. With the rediscovery of bran, advertising has persuaded consumers of the desirability of paying manufacturers still more for putting these food elements back into their products—or even for not bothering to take them out.

At the same time, the bran which is removed has come into its own as a super-food, to be sold at very profitable prices. Not only does it contain, in the advertisements, iron and phosphorus in concentrated form; it needs to be eaten every day to insure regular bowel movements.

The Council on Foods of the American Medical Association has seen fit to step on the exaggerated claims made for bran and bran products. "Whole grain cereals, and vegetables and fruits in general," it points out, "are excellent sources of roughage. Bran itself may be irritating to sensitive bowels; the indigestible cellulose of vegetables and fruits is much less irritating." (See also the comments cited in the article on constipation on page 29 of this issue.)

THE A. M. A. Council, of course, merely passes on advertising which is submitted to it for approval; hence its approval is no guarantee of quality of the product itself. Most of the widely sold breakfast cereals do not bear this approval. Where one does, all of its advertisements must be submitted before they are issued. And when advertisers fail to do this, A. M. A. approval is withdrawn.

The Ralston Purina Company, which once had this approval for its wheat cereal, apparently found the rules of the Council too restricting.

SUNNYFIELD

HUSKIES

FORCE

... nothing more profitable than a career in cereals

Ralston came forth, much to the Association's amazement, with unsubmitted ads claiming that their product was "double-rich in vitamin B," which "keeps appetites normally eager"; that it would "make cheeks rosy . . . build resistance to colds and disease. . . ."

As the A. M. A. Council pointed out, "neither Ralston itself, any other single food nor the entire, well balanced diet possesses these potencies." To top it off, Ralston glowed with pride that by hiring Tom Mix to entice children to eat its product it was "*Building Better Health and High Ideals* among the children of America."

Actually, there is considerable question as to the advisability of forcing, coaxing, or enticing children to eat lots of *Ralston* or any other cereal. The glowing pink cheeks in the breakfast food ads may well be covering mouths full of poor teeth. For there is appreciable scientific evidence to suggest that too much cereal in a child's diet may be associated with excessive tooth decay.

Another question in which consumers are interested, but on which insufficient scientific data seems to have been published, is the effect on vitamin content of the various processes by which cereals are prepared. Whole-grain cereals are a good source of vitamin B, but no information is available on the extent of vitamin destruction by the processes used.

Both shredded and flaked wheat products were found with vitamin B claims on their labels. This means lit-

tle, of course, in the absence of definite statements as to the amount of the vitamin present. No claim was found for *Puffed Wheat*, and there is some evidence that being "shot from guns," at any rate, is destructive of the vitamin.

IN THE accompanying table are summarized the results of a survey of a large number of cereal products of various types. Except for the brans, relative cheapness of the different brands is given in terms of the number of calories which they supply for one cent, since their chief food value lies in their high energy content. Note is also made of their satisfactoriness as sources of essential minerals. Those cereals in which these elements are missing should be included only in a diet in which other foods rich in them are present.

Since prices vary both from store to store and from one locality to another, those used in computing the table are listed for comparison. Net weights of the packages are likewise given, since these also have been known to change.

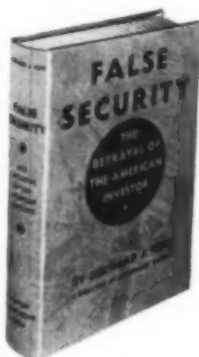
Since bran in the quantities in which it can safely be eaten is no great source of calories, the two all-bran products are compared merely on the basis of cost per pound. As noted elsewhere, bran is both an unnecessary item of diet for normal persons and an unsafe one for many. Even the "part-bran" products should be consumed with caution. (See next page for table)

"This Is a Startling Book"

—New Republic

"A Blistering Book"

—Christian Science Monitor



THE need of a book to show the plain investor what he is up against has long been felt. *False Security* fills the need admirably. In it, Bernard J. Reis, Treasurer of Consumers Union, and a public accountant of long experience, "shows the American investor bucking the slick shell game of American finance." His 362-page volume—written in clear, simple language—shows just how your savings can be taken away from you in a perfectly legal manner. IT NAMES NAMES AND CITES ACTUAL CASES.

"Mr. Reis' book is an anatomy of grand larceny as practiced by the better classes."—*The Nation*.

"Startling piece of financial sleuthing. . . Simply and forcefully written, this book is of inestimable value to the investing public."—*Cincinnati Enquirer*.

"Investors, both actual and prospective, will find Mr. Reis' competent and sincere work extremely valuable for the information and guidance it contains."—*New York Times*.

"Written to make clear to plain people the meaning of financial terms and transactions by which they are cheated. It is filled with specific charges and is remarkably readable. It will be of value to any investor."—*Book of the Month Club Recommendation*.

CU members who have occasion to go shopping for investments will find *False Security* an invaluable guide. By arrangement with the publishers, Equinox Cooperative Press, the regular \$2.75 edition of *False Security* is offered to CU members for \$1.40, postpaid. The author has waived royalties on these copies.

CONSUMERS UNION OF U. S., INC.
55 Vandam St., New York, N. Y.

I inclose \$1.40 for a copy of *False Security* at the special members' price.

Name
(Please Print)

Street and No.

City and State

CONSUMERS UNION Reports

Breakfast Cereals

A comparative analysis of the cost, caloric value, and mineral content of 37 brands.

BRAND AND MANUFACTURER OR DISTRIBUTOR	PKG. ¢	PKG. oz.	CALORIES per ¢	MINERAL CONTENT
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Whole-Wheat Cereals

Pettijohn's	(Quaker Oats Co.)	19	22	115 ¹	good
Shredded Wheat	(National Biscuit Co.)	12	12	115	good
Ralston	(Ralston Purina Co.)	23	24	110 ¹	good
Kellogg's Shredded Wheat	(Kellogg Co.)	13	12	105	good
Wheatena	(Wheatena Corp.)	23	22	100 ¹	good
Kellogg's Wheat Krispies with Rice	(Kellogg Co.)	12	10½	95	good
Force	(Hecker Prod. Corp.)	12	9	85	good
Wheaties	(General Mills)	12	8	75	good
Huskies	(General Foods)	15	10	75	good
Kellogg's Krumbles	(Kellogg Co.)	14	9	70	good
Grape-Nuts Flakes	(General Foods)	11	7	70	good
Grape-Nuts	(General Foods)	19	12	70	good
Quaker Puffed Wheat...	(Quaker Oats Co.)	8	3½	50	good

Farinas (Refined Wheat Cereals)

Mello-Wheat	(A. & P.)	19	28	155 ¹	poor
Pillsbury's Farina	(Pillsbury Flour Mills)	10	14	140 ¹	poor
Cream of Wheat.....	(Cream of Wheat Co.)	14	14	105 ¹	poor
Hecker's Cream Farina..	(Hecker H-O Co.)	15	14	100 ¹	poor

Oat Cereals

Sunnyfield Rolled Oats..	(A. & P.)	08	20	290 ¹	good
Co-op Rolled Oats.....	(Central Cooperative Wholesale)	09	20	260 ¹	good
Quick Quaker Oats.....	(Quaker Oats Co.)	09	20	260 ¹	good
Three Minute Oat Flakes..	(National Oats Co.)	09	14	180 ¹	good

Corn Cereals

Quaker Corn Meal.....	(Quaker Oats Co.)	16	24	150 ¹	fair
Sunnyfield Corn Flakes..	(A. & P.)	06	8	150	fair
Co-op Corn Flakes.....	(Central Cooperative Wholesale)	11	13	130	fair
Post Toasties	(General Foods)	07	8	125	fair
Kellogg's Corn Flakes...	(Kellogg Co.)	07	8	125	fair

Rice and Rice Cereals

Reeves Whole Head Rice..	(Daniel Reeves)	10	16	160 ¹	poor
Comet White Rice.....	(Comet Rice Co.)	10	12	120 ¹	poor
Comet Brown Rice.....	(Comet Rice Co.)	10	12	120 ¹	good
Heinz Rice Flakes.....	(H. J. Heinz Co.)	11	6½	60	poor
Kellogg's Rice Krispies..	(Kellogg Co.)	11	6	60	poor
Quaker Puffed Rice.....	(Quaker Oats Co.)	11	4	40	poor

Part-Bran Cereals ²

Co-op 40% Bran Flakes..	(Central Cooperative Wholesale)	10	10	105	good
Kellogg's Pep	(Kellogg Co.)	11	10	100	good
Post's 40% Bran Flakes..	(General Foods)	11	10	100	good

All-Bran Cereals ³

BRAND AND MANUFACTURER	PACKAGE ¢	PACKAGE oz.	COST PER LB. ¢
Pillsbury's Wheat Bran.. (Pillsbury Flour Mills)	18	20	14.4
Kellogg's All Bran..... (Kellogg Co.)	21	18	18.7

¹ Exclusive of cost of cooking.

² Desirability for general use as breakfast food doubtful because of high bran content.

³ Not desirable as a breakfast cereal.

A report—with ratings—on standard types of HEATING EQUIPMENT

including oil burners, magazine-feed
boilers, coal stokers, hot-air furnaces



IN SPITE of the promotion efforts of the automatic heating equipment manufacturers, coal still goes into the heating plants of most American homes, and it goes in on a shovel.

According to a survey made by the *Milwaukee Journal*, only 5.4% of the families living in Milwaukee have automatic heating equipment (stokers or oil or gas burners). Of this small percentage, 62.9% use oil burners, 30.2% coal stokers, and only 6.9% use gas.

Studies made by the Department of Commerce in various cities throughout the country show that coal so far outranks other fuels for heating that fuel oil and gas are relatively unimportant.

In Racine, Wisconsin, for example, only 2.5% of the families surveyed used oil as a fuel, while 96.8% were using coal.

In Trenton, New Jersey, the figures are only slightly different; 2.3% were equipped for oil heating while 97% used coal.

But you don't get any such picture from the advertisements.

The oil and gas burners are moving into the new season on a wave of promotion suggesting that any civilized family has or will soon have an oil or gas burner. And meanwhile the large coal interests have combined with the automatic stoker manufacturers to fight the competition by pushing the sale of stokers.

In the midst of the hubbub, what is really the best type of heating for your needs?

WHERE economy is the major concern, careful consideration should be given to renovating your present heating system before purchasing new equipment of any kind. A complete overhauling of the old boiler or fur-

nace may give the desired results. And if the heating capacity of your boiler is still insufficient, an additional section may be added.

Make a careful check of all flue and chimney passages and see that they are not only clean but airtight. Check the stack temperatures when the boiler is under full operation. If the stack temperature is under 500°F the boiler is operating efficiently. If the house requires more heat, a boiler with a larger grate area will be needed.

In most areas, a well designed coal furnace or boiler will no doubt be much less expensive than either gas or oil. In the *Reports* for August, 1936 a table was given comparing installation and annual fuel costs for various types of heating equipment. Here it was shown that the annual fuel bill for a magazine-feed boiler fired with buckwheat coal would be about \$68 as against \$111 for fuel oil in heating the same sized house. If the larger

sizes—coal, egg, or nut—are necessary, the ordinary hand-fired burner will consume something like \$117 worth of fuel.

These figures are for anthracite coal only. Where bituminous (soft) or semibituminous coal is available, costs will be considerably reduced, but soft coal requires a special firing technique and more frequent attention than hard or anthracite coal.

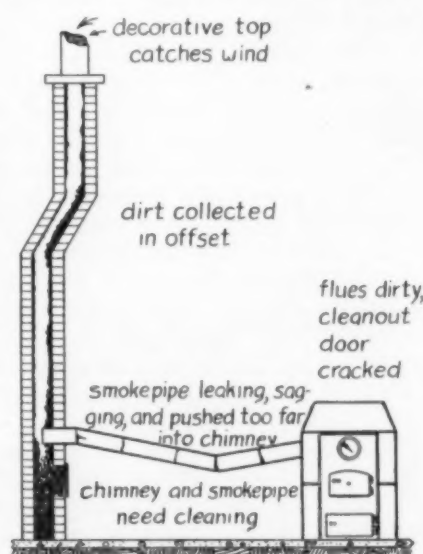
As against coal prices, which have remained steady and fairly low, domestic fuel oil prices have been shooting upwards. Price and grade manipulations have increased oil heating costs as much as 10% to 25% in many localities. And engineers in the industry state frankly that they expect additional rises in the future. Gas for heating purposes, particularly in natural-gas areas, has been dropping considerably in recent years.

This, in brief, summarizes the changes in the competitive fuel situation which have taken place since last year's report. The natural result has been to turn numerous home owners away from the oil burners to a consideration of gas heating and automatic stokers.

For the majority of home owners the latter will be found more economical to operate than the gas equipment. Figures given in the table mentioned above show that buckwheat coal for a stoker will cost approximately \$76 for one season against \$182 for manufactured gas.

Selection of a Boiler or Furnace

AS WITH most equipment which must be serviced from time to time, and inefficient operation of which may represent considerable loss of money, boilers, furnaces, and automatic heating equipment should be purchased



COMMON DEFECTS

First go over what you have

from a well established, reliable dealer or contractor. It is well to get bids from several, final choice being determined not only by the price but as well by the contractor's reputation in the installation of such equipment.

Be particularly careful of agents of heating companies geared for high-pressure sales work and with reputations for not fulfilling promises. Too often the ultra-modern sales organization of a new company eclipses the sales efforts of old timers in the heating business.

The buyer will often have difficulty in selecting heating equipment of the proper size. Manufacturers have different methods of rating the capacities of their boilers and furnaces, and often such ratings are aimed at producing sales, not at getting the best heating results.

In asking for bids, include a request for minimum and maximum sizes of boiler for the heating load and then pick the maximum size.

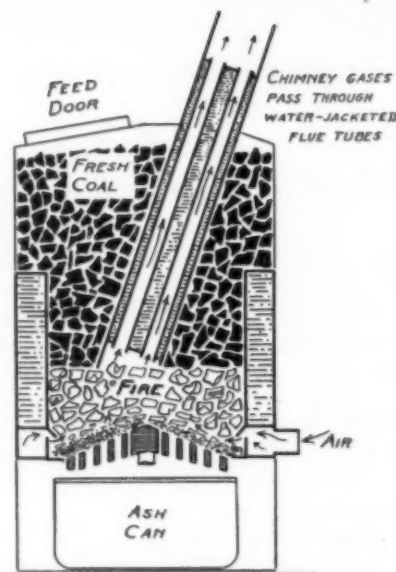
Obtain guarantees for maximum stack temperatures (not over 650°F) and do not complete the payment on the equipment until these temperatures have been determined under regular operating conditions with all radiators hot.

Any heating contractor interested in his customer's problems should possess and be able to use a smokepipe thermometer. As an indication of the number of poor installations it should be noted that less than 35% of the boilers installed today can meet this test.

You will have to choose between the round and rectangular cast-iron boilers and the steel boilers. The latter as a rule cost more for small domestic units, but they have certain definite advantages over cast iron. They respond more quickly to an increase in firing rate and are, in general, more efficient. Further, they give much better service and longer life for oil-burning installations.

One consultant believes that an oil burner should not be used in a cast-iron boiler because of the metallurgic changes (frequently resulting in a cracked section) that are caused by the comparatively high and rapidly changing temperatures.

An advantage of the round cast-iron boilers is that they come in different diameters and are made up of sections,



ANTHRA-HEAT BOILER

(See below)

thus permitting enlargement to fit the job. The same manufacturers may offer two different sizes: (1) a 4-section boiler having a 28-in. diameter grate; and (2) a 6-section boiler having a 23-in. diameter grate.

The 6-section size should be considered the more desirable by a wide margin. It gives the lower stack temperatures because of its long flue travel which allows the gases to lose their heat to the walls before leaving the boiler. And it is better suited to oil or stoker firing—an important advantage to the home owner planning to switch to automatic heating at a later date.

The 4-section boiler has only one advantage—since the grate is larger, more fuel can be stored in it and it will require somewhat less frequent fueling. It also requires less headroom in the basement. In basements with low headroom it may be necessary to make a pit for the 6-section boiler.

Small rectangular boilers compare with the 4-section (low) round type. Their limited lengths give comparatively short flue travels, resulting in high stack heat losses. Where such a boiler is selected it is wise to use a relatively large number of sections, about 6, to give adequate flue travel.

The new Anthra-Heat boiler (above) developed by the Anthracite Institute represents an attempt to build a modern, efficient boiler especially designed for anthracite coal. The usual combus-

CONSUMERS UNION Reports

tion chamber is eliminated and there are relatively few square feet of very effective waterbacked heating surface. Compared with the standard cast-iron magazine-feed boiler, it has these disadvantages: (1) it requires larger and more expensive coal; (2) it is built in only one size; (3) it can not be converted to oil, gas, or stoker firing.

The particular advantage of the anthracite unit lies in its extreme simplicity and the consequent low cost of manufacture, and in the fact that it is more economical of fuel than other types of boilers using the same sized coal.

Production engineers familiar with this unit state that when it is produced in the same quantity as other boilers of standard types it should cost but half to two-thirds as much. At the present time, the selling price is relatively high.

The unit has a very high storage capacity and needs refueling not more than once every 24 hours even in the most severe weather.

Warm-Air Furnaces

WARM-air" or "hot-air" furnaces are passé, as so described. These heating devices are now generally advertised as "air-conditioning" systems. But don't be misled by the modern terminology.

In most instances all that has happened is that the manufacturers of warm-air furnaces have given their products new names and hired industrial stylists to put on a new cover with bright trim. Some of the furnaces may be equipped with an electric fan, but electric fans were used to push air through the ducts long before the advent of air conditioning.

Warm-air furnaces, with their low initial cost, still remain the least expensive central heating plants for the usual small home installation. Their chief disadvantages are: (1) they are inefficient in getting heat to all rooms of a house, particularly through ducts running to the windward sections of the house; (2) they lack the heat-retaining capacity of a hot-water system; (3) the fire box, if not well sealed, may leak gas into the hot-air circulating system. Their advantages are: (1) low initial cost; (2) their capacity for humidifying air with an automatic device; (3) their quick response to an increase in firing rate.

Warm-air furnaces of cast iron are even less desirable than cast-iron boilers. Where warm-air furnaces are used with automatic firing equipment, particularly oil burners, and especially where a fan is used for circulating the hot air, they should be made of steel. Made of cast iron and assembled in sections, they are likely to open up and permit combustion gases to circulate through the heating ducts, with the attendant dangers of monoxide poisoning.

Modern steel furnaces are equipped with a refractory lining to prevent burning up of the metal surrounding the fire box. They should be installed, however, only in a relatively dry basement; they will then be as long-lived as cast iron.

All of the boilers and furnaces listed are designed to burn either anthracite or bituminous coal. Be sure, however, to order the grates best suited for the particular fuel you use. Most boilers and furnaces with good draft will handle pea coal if equipped with fine grates.

For proper methods of firing all types of coal, see *Saving Fuel in Heating a House*, Technical Paper 97 of the Bureau of Mines, Washington, D. C., (5c) and *Tests of Household Fuel Savers and the Economical Use of Coal*, Pennsylvania State College Engineering Experiment Station Bulletin No. 34 (price 25c or free to residents of Pa.).

Coal Stokers

AS POINTED out at the beginning, so far as automatic heating equipment is concerned, a coal stoker will in most instances represent the most economical investment. The savings depend, of course, on the availability and the cost of satisfactory stoker coal, either bituminous or the smaller sizes of anthracite—buckwheat and rice.

If the coal costs more than 75% of the price paid for hand-fired coal, the purchase of a stoker will be a doubtful economy. In this connection bear in mind that the introduction of stokers has resulted in an increased cost of the smaller sizes of anthracite.

A good stoker will burn the fuel more efficiently than hand-fired equipment and, because of its automatic features, will not only eliminate a great amount of the extra labor of firing but will also give more uniform

temperatures. The increased efficiency in the burning of the fuel may, however, be offset to some extent by the user's tendency to keep the rooms at a higher temperature. Room temperatures should never rise above 70° and preferably should be kept near 68° F with proper humidity—easier to maintain at lower temperature.

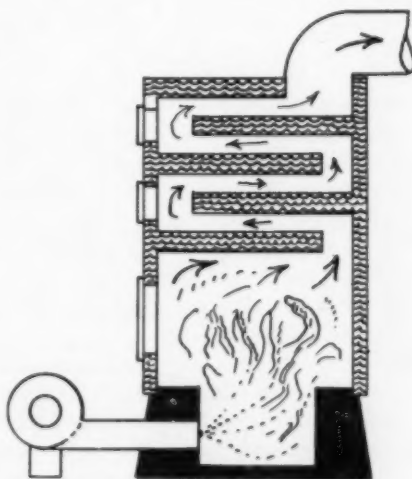
In order to eliminate the smoke nuisance, some city ordinances have been enacted which require that all new heating plants using bituminous or soft coal must be equipped with a stoker. Such requirements no doubt have the full sanction of the stoker manufacturers; but they will certainly work a hardship on the low-income prospective home owners.

There can be little doubt that a good stoker installation will burn soft coal more efficiently and with less smoke production than hand-firing methods. Soft coal *can*, however, be burned in the hand-fired boiler with a minimum of smoke production, if careful attention is paid to proper firing methods.

A number of the stokers given in the ratings are available in a variety of sizes and with a number of different accessories which can be had at added cost, depending upon the degree of convenience desired. These include ash-removal devices, automatic bin feeds, and clock-type thermostats.

The installed prices of stokers in small domestic sizes range from about \$200 to \$400.

As a rule, coal companies offer better stoker service than dealers who sell stokers and heating equipment only.



GUN-TYPE OIL BURNER

(See column 3)

Oil Burners

ALTHOUGH oil burner sales have slumped as a result of increases in the price of oil, oil heating installations still outrun gas heating and stoker installations by a wide margin. Gun-type burners, assembled of standard parts and carefully installed and serviced, are most satisfactory for the majority of home owners desiring this type of equipment.

There are upwards of 100 manufacturers of gun-type burners operating on a more or less national scale. But for every one of these there are several manufacturers producing burners for distribution in limited areas. Most such burners are assembled from standard parts, pumps, special valves and strainers, nozzles, blowers, ignition system parts, and controls.

A typical small burner "manufacturer" producing burners for his own and several other retail outlets assembles burners in the outskirts of New York.

He buys all his parts, including one casting made especially for him at a local foundry. And his men assemble and crate the jobs at home. For this, they receive \$1.90 per burner.

No tests of the finished burner are needed, so the "manufacturer" says; the component parts have been tested and guaranteed by their several makers and the dealer's service or installation men will usually find any grossly defective parts.

This typical procedure and attitude of the small-fry "burner manufacturers" is not likely to result in the best in oil heating equipment. However, neither can the prospective buyer place full confidence in the nameplate of a manufacturer known nationally and with great financial backing.

Large corporations have slipped quickly into the burner business by establishing sales outlets and simultaneously arranging to buy burners from other manufacturers. In many cases it is simply the lowest bidder who supplies these burners, which are then sold under different and often impressive names.

The Delco burner, for example, is hardly the product of General Motors, so far as design goes. It is a typical pressure-atomizing burner.

To get a foot-hold in the field, General Motors bought out the old Rickard burner company and revamped its

models before going ahead with production. With respect to its assembly, *Delco* advertising has been misleading. It has loudly proclaimed special economic advantages for a standard oil-regulating valve not made by *Delco*. Actually, duplicates of this valve are found on hundreds of other burners. The valve is a rudimentary and necessary piece of equipment and not something unique to give more than usual reduction in fuel bills.

Burners sold with the labels of *Norge*, *Carrier*, *Kelvinator*, and *Holland* have been built in the factories of different manufacturers, although this is never indicated on the nameplate. Assembled burners frequently are makeshifts to be sold until the manufacturer who affixes his nameplate learns something about building burners, arranges manufacturing set-ups, and finally brings out an "improved" model actually made in his plant.

A new and important "Best Buy" in oil burners is the *Williams* Model HP-3, made by the *Williams Oil-O-Matic Heating Corp.* but not part of the line featured by this company.

It is a high-pressure atomizing burner as opposed to the special, featured low-pressure atomizing gun type. Suitable for burning about one to three

gallons of No. 3 oil per hour, it will heat homes requiring up to fifteen tons of coal a year. It includes standard parts—a 1/10 horsepower motor of capacitor type, a Webster double-pump power unit, a standard pressure nozzle, etc. The price in many cities ranges from \$190 to \$200 complete with controls, a tank installation, one year's free service, and the usual guarantee.

The HP-3 model, when carefully serviced and installed, will give economy and satisfaction equal to any pressure-atomizing gun-type burner. Using No. 2 oil, when upwards of one gallon per hour is consumed in the boiler, it will perform as well as the standard *Oil-O-Matic*.

Buy the higher-priced low-pressure burner only when cheaper oil is available; that is, when the No. 4 domestic oil is selling under the No. 2 or No. 3 by 1/2c or more a gallon.

Dealers as a rule can obtain only a limited number of the high-pressure model. The factory, we understand, instructs dealers to attempt to prove to customers and prospects that the *Oil-O-Matic* low-pressure line is superior by pointing out that *Williams* also makes the high-pressure model sold by most burner manufacturers.

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Vaporizing and Wall-Flame Rotary Burners

Because of its tendency to smoke and form carbon and the necessity for using the lighter and more expensive fuels, no vaporizing-type burner is considered satisfactory. Wall-flame rotary burners are "Not Acceptable" for boilers and furnaces in which the gun type will give fair economy.

Compared to the gun-type burner, the wall-flame rotary requires the use of high-priced, highly refined oil; it gives trouble with ignition and motor when installed under conditions slightly unfavorable; its parts are in the ashpit of the heater where they accumulate dirt, frequently overheat, and make repairs difficult.

Despite these shortcomings and the fact that this burner is more fragile than the husky gun type, occasionally the desire for extreme quietness in starting and running justifies its use.

Moreover, in boilers and furnaces poorly suited to oil firing (particularly some round and square boilers with short flue travel), wall-flame rotaries frequently run lower fuel bills—especially in cities where the relatively heavy oil burned by the gun type costs as much as the kerosene-like oil needed for the wall-flame rotary.

Ratings of Heating Equipment

Oil Burners

Best Buy

Williams Model HP-3 (*Williams Oil-O-Matic Heating Corp.*, Bloomington, Ill.). A competitive model, hence not labeled *Oil-O-Matic*. This model is the price leader of the *Williams* line. According to the manufacturer, it is built to sell for about \$195 including installation, wiring, controls, 275-gallon oil tank, and one year service. No extras.

Where this burner is available, buyers should hesitate to pay more for any high-pressure atomizing burner, no matter what the make or alleged extra features.

Also Acceptable

Any pressure burner listed here is a "Best Buy" when sold for \$200 or less. This price should include the complete, guaranteed, 275-gallon tank

installation described above. Remember that topnotch installation and service are necessary for satisfactory operation.

Some preference should be given the first five burners listed because of first cost and service. Beginning with ABC the order has no significance.

Gilbarco (Gilbert & Barker Mfg. Co., Springfield, Mass., subsidiary of Standard Oil Co. of N. J.).

Electrol (Electrol, Inc., Clifton, N. J.).

Timken Gun Type (Timken Silent Automatic Co., Detroit).

Masterkraft (Harvey Whipple, Inc., Springfield, Mass.).

Williams Oil-O-Matic (*Williams Oil-O-Matic Heating Corp.*). Offers advantages over high-pressure burners. Is the only widely sold gun-type burner mentioned in this report that is not of the high-pressure atomizing type. However, though especially

suited for heaviest domestic oils sold today, and for small house-heating loads, it is priced high in comparison with the *Williams* Model HP-3. Unless "Domestic" No. 4 oil is available at 1/2c to 1c less per gallon than No. 2 or No. 3, buy the HP-3. *ABC* (Automatic Burner Corp., Chicago). Gun type only.

Airtemp (Chrysler Corp., Detroit).

Bethlehem Doe (Bethlehem Foundry and Machine Co., Bethlehem, Pa.).

Bettendorf (Micro-Westco, Inc., Bettendorf, Iowa).

Braden (Braden Engineering, Inc., Providence, R. I.).

Branford (Malleable Iron Fittings Co., Branford, Conn.).

Calorol (Calorol Burner Corp., Hartford, Conn., subsidiary of Silent Glow Burner Corp.). Gun type only.

Century (Century Engineering Corp., Cedar Rapids, Iowa).

Delco-Heat (Delco Appliance Corp., Rochester, N. Y., div., Gen. Motors).

D'Elia (D'Elia Oil Burner Co., Bridgeport, Conn.).

Everedy (Oil Burner Builders, Inc., Bellevue, Iowa).

Fluid-Heat (Anchor Post Fence Co., Baltimore). Gun type.

Gar Wood "Gold Star" (Gar Wood Industries, Inc., Detroit).

Heil-Combustion (Heil Co., Milwaukee).

Herman-Nelson (Herman Nelson Corp., Moline, Ill.).

Kelvinator (Kelvinator Corp., Detroit).

Kleen-Heet (Kleen-Heet, Inc., Chicago).

Motor Wheel (Motor Wheel Corp., Lansing, Mich.). Gun type.

Norge (Borg-Warner Corp., Detroit).

Nu-Way (Nu-Way Corp., Rock Island, Ill.).

Petro (Petroleum Heat & Power Co., Stamford, Conn.). Gun type.

Quiet May (May Oil Burner Corp., Baltimore).

Rexoil (Reif-Rexoil, Inc., Buffalo, N. Y.).

Scott-Newcomb (Scott-Newcomb, Inc., St. Louis, Mo.).

Silent Glow (Silent Glow Oil Burner Corp., Hartford, Conn.). Gun type.

Toridheet (Cleveland Steel Products Corp., Cleveland). Gun type.

United States (United States Burner Corp., Hartford, Conn.). Gun type.

Universal (Universal Manufacturers, Inc., Ridgewood, N. J.).

Volcano (Volcano Burner Corp., NYC).

Waltham (Julian D'Este Co., Boston).

York (York Oil Burner Co., Inc., York, Pa.).

Not Acceptable

Marr (Franklin Oil Heating, Inc., Columbus, Ohio). Vaporizing type.

Challenger (Sterling Materials Co., Inc., NYC). Vaporizing type.

Hercules (Sears, Roebuck & Co., Philadelphia). Inferior installation and service work reported.

Petro Model W1 (Petroleum Heat & Power Co.). Some dealers offer this burner at a higher price than the *Petro* pressure burner, and allege that it will burn fewer gallons of light heating oil. The claim has no foundations. The *Petro* Model W1 is a horizontal rotary burner that obtains air for combustion by natu-

ral draft as well as by blower. Hence lower burning efficiencies may be expected than with a good gun-type burner and greater tendency to form soot and smoke during starting with poor draft. Installation is more complicated since it uses gas-electric ignition, whereas the gun burner uses electric alone.

Quiet-Heet (Quiet-Heet Mfg. Corp., Newark, N. J.). Gives unsatisfactory operation, owing, apparently, to use of cheap parts, poor machining of castings, and assembling by unskilled workers.

Pressure and Leader (Pressure Oil Burners, Inc., York, Pa.). Excessive wear and noise, owing to poor alignment of several parts. These burners are obviously designed for extremely low costs.

ABC Vertical Rotary Burners (Automatic Burner Corp.). Give excessive trouble of three kinds:

1. Poor combustion because more dependent on natural draft than are most other motor-equipped burners.

2. Special high-speed motors overheat in ashpit locations; in some models, commutators and brushes of the extremely high-speed motors give considerable repeat trouble.

3. Ignition gives trouble owing to unusual flame.

Wall-Flame Rotary Burners

As stated in the text, wall-flame rotary burners might be selected for certain small domestic boilers and furnaces in which gun burners would not be as efficient. Also, they might be used for maximum starting and running quietness. However, they are not as characteristically foolproof and durable as gun-type burners. The following should be most satisfactory.

Timken Silent Automatic (Timken Silent Automatic Co., Detroit).

Fluid Heat (Anchor Post Fence Co., Baltimore).

Toridheet (Cleveland Steel Products Corp., Cleveland).

Hand-fired Boilers

Best Buys

Fitzgibbons (Fitzgibbons Boiler Co., Inc., NYC). Steel boilers only.

National (National Radiator Corp.,

Johnstown, Pa.). Series AH cast-iron boilers. Sound and efficient in design and construction. Usable developments: foot-pedal control for ashpit door; good damper adjustments; special heating surfaces.

H. B. Smith and Mills (H. B. Smith Co., Westfield, Mass.). Rectangular "water-tube" cast-iron models only; efficient, low fuel costs.

Indestructo (Sears, Roebuck & Co., Chicago). Round and rectangular cast-iron boilers.

Weil McLain (Weil McLain Co., Chicago). Round and rectangular cast-iron boilers.

Also Acceptable

Arco No. 7 (American Radiator Co., NYC). A *Best Buy* if purchased in size to take care of heating load. This calls for one or two sizes larger, for any domestic installation, than a salesman or heating contractor might pick on the basis of ratings.

Richmond (Richmond Radiator Co., NYC).

Burnham (Burnham Boiler Corp., Irvington, N. Y.). Both steel and cast iron.

Richardson (Richardson & Boynton Co., NYC).

Pierce and Pierce-Eastwood (Pierce, Butler & Pierce, NYC).

Royal (Hart & Crouse Co., Inc., Utica, N. Y.).

Kewanee (Kewanee Boiler Corp., Kewanee, Ill.).

Capitol (United States Radiator Corp., Detroit).

Crane (Crane Co., Chicago).

International (International Boiler Works Co., East Stroudsburg, Pa.).

Magazine-Feed Boilers

Best Buys

Spencer (Spencer Heater Co., Williamsport, Pa.). When a factory representative selects or approves the size to be used for a given load, the buyer may be reasonably certain of economy.

Anthra-Heat (Fitzgibbons Boiler Co., NYC). See qualifications in text; made in only one size, for maximum of 300 sq. ft. standing hot-water radiation.

Anthra-Heat (Burnham Boiler Corp., Irvington, N. Y.). Hot-water boiler

similar to Fitzgibbons.' Also comes in steam model with maximum 190 sq. ft. standing steam radiation.

Also Acceptable

Ideal Magazine Boiler (American Radiator Co., NYC).
Weil-McLain (Weil McLain Co., Chicago).
Molby (Molby Boiler Co., Inc., NYC).
Newport (Richardson & Boynton Co., NYC).

Oil-Burner Boilers

Best Buys

Fitzgibbons "Oil-Eighty" (Fitzgibbons Boiler Works, Oswego, N. Y.). Steel.
Burnham Cast-Iron (Burnham Boiler Corp., Irvington, N. Y.).
H. B. Smith (H.B. Smith Boiler Co., Westfield, Mass.).
Capitol Series O (United States Radiator Corp., Detroit).
Ti-Scot (Titusville Iron Works, Titusville, Pa.). Exceptionally efficient Scotch Marine design; ratings are truly conservative.
Pacific (United States Radiator Corp.). Requires unusually high and steady chimney draft.

Also Acceptable

Titusville (Titusville Iron Works). Steel.
Arco Oil Furnace Numbers 11 and 12 (American Radiator Co., NYC).
Kewanee Type R (Kewanee Boiler Corp., Kewanee, Ill., subsidiary of American Radiator Co.). Steel.
Pierce (Pierce, Butler & Pierce, NYC).
Weil-McLain (Weil-McLain Co.).

Not Acceptable

The following boilers are not efficiently designed for oil, having large flue passages and a comparatively small amount of indirect heating surface. By following the manufacturer's recommendations as to size you can get sufficient capacity, but efficiencies will be intolerably low in comparison with better designs.

National Bonded Oil Burning Boiler (National Radiator Corp., Johnstown, Pa.).
Thatcher Oil Master (The Thatcher Co., Newark, N. J.).
Crane (Crane Co., Chicago).
Kohler (Kohler Co., Kohler, Wis.).

Anthracite Stokers

Best Buys

Electric Furnace-Man (Electric Furnace Man, Inc., NYC).
Fuel-Savers (Fuel Savers, Inc., Harrisburg, Pa.). Ruggedly built. Company has not resorted to high-pressure selling methods.
D. & E. Automatic Anthracite Burner (Dickson & Eddy, NYC).
Cooper Anthracite Stoker (Cooper & Cooper, Inc., Pittsfield, Mass.).

Also Acceptable

Stokol (Schwitzer-Cummins Co., Indianapolis, Ind.).
Link Belt Anthracite Stoker (Link Belt Co., Chicago).
Anchor Kolstoker (Anchor Stove and Range Co., New Albany, Ind.).
Iron Fireman (Iron Fireman Mfg. Co., Portland, Ore.; branch at Cleveland). Company given to high-pressure selling methods, with no regular selling prices. Dealers have been known to install under-size stokers in order to build sales.
Fairbanks-Morse (Fairbanks, Morse & Co., Chicago).
Motorstoker (Hershey Machine & Foundry Co., Manheim, Pa.).

Bituminous Stokers

Many of the stokers listed below have been available a comparatively short time, and accurate efficiency and operating data are not yet completely available. The relatively high price (\$7) of bituminous coal in some areas, particularly in the East, does not make a bituminous stoker an economical purchase. It will be more economical, because of greater combustion efficiency, to purchase an anthracite stoker when the price of buckwheat coal is around \$8.50 per ton.

Best Buys

H. & H. (Holcomb and Hoke Mfg. Co., Indianapolis, Ind.).
Anchor Kolstoker (Anchor Stove & Range Co., New Albany, Ind.).
Whiting (Whiting Corp., Harvey, Ill.).

Also Acceptable

Iron Fireman (Iron Fireman Mfg.

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Co., Portland, Ore.; branch at Cleveland). Comments under the anthracite stoker of this make apply.
Link Belt (Link Belt Co., Chicago).
Morse (Morse Chain Co., Detroit, Mich.).
Winkler (Winkler Mfg. Corp., Lebanon, Ind.).
Econocol (Econocol Stoker Corp., Rockford, Ill.).
Fairbanks Morse (Fairbanks Morse Co., Chicago).

Boilers for Stokers

The following boilers have been found to be particularly well adapted for stokers:

Spencer Steel Boiler (Spencer Heater Co., Williamsport, Pa.).
Fitzgibbons Coal-Eighty (Fitzgibbons Boiler Works, Oswego, N. Y.).
Burnham Steel Coal-Burning Boiler (Burnham Boiler Corp., Irvington, N. Y.).
SO & WO Crane Boilers (Crane Co., Chicago).

Warm-air Furnaces

All of the furnace manufacturers listed below build both steel and cast-iron furnaces. Where such units are to be used with stokers or oil burners, be sure to purchase a furnace of ample size. Steel furnaces will be far more efficient and safe where stoker and oil-burner equipment is used.

Best Buys

Mueller (L. J. Mueller Furnace Co., Milwaukee, Wis.).
Hercules and Indestructo (Sears, Roebuck & Co., Chicago).

Also Acceptable

Weir and Meyer (Meyer Furnace Co., Peoria, Ill.).
Lennox (Lennox Furnace Co., Syracuse, N. Y.).
Sunbeam (Fox Furnace Co., Elyria, O.).
Hess (Hess Warming & Ventilating Co., Chicago).
Royal (Hart & Crouse Co., Utica, N. Y.).
Moncrief (Henry Furnace & Foundry Co., Cleveland).
Holland (Holland Furnace Co., Holland, Mich.). Cast iron only. Interlocking joints. Prices are high.

Oil Burners—Union or Non-Union?

ABC—J. H. Hirsch, president of the Automatic Burner Corp., writes: "Our lowest rate is 60c per hour for all but the young men, and we work 44½ hours weekly." CU's question on relations, if any, with organized labor was not answered by Mr. Hirsch.

Airtemp—Manufactured by members of the United Automobile Workers of America.

Delco-Heat—Made by members of the United Automobile Workers of America.

Electrol—The normal work week is 40 hours, occasionally 44, and wages range from 45 to 75c an hour, with a 52c average, according to Lionel L. Jacobs, vice-president of Electrol, Inc. He adds that although "we have a number of union men working for us, we have never had any specific organization. I believe at different times our men have been approached and as most of them have been with us for many years, apparently they have not yet felt the necessity of organizing." Mr. Jacobs likes to think that the Electrol workers, whose wages average \$20.80 a week, are "all more or less part of a happy family."

Fluid-Heat—Joseph Gillis, A. F. of L. representative in Baltimore, informs us that products of the Anchor Post Fence Co. are "made under union conditions."

Gar Wood—Frank H. Dewey, general manager of the air conditioning division of Gar Wood Industries, Inc., informs us that these burners are manufactured by members of the United Automobile Workers of America, a CIO union, under a written agreement specifying the 40-hour week and hourly rates ranging from 75c to \$1.13 (\$30 to \$45.20 a week).

Heil-Combustion—The manufacturer operates under a contract with the Steel Workers Organizing Committee which provides, according to H. J. McCartney of SWOC, the 40-hour week, time-and-a-half for overtime, and wages "as good as if not better than all others" in the industry.

Leader—Made by Pressure Oil Burners, Inc., York, Pa. See *York*.

Marr—Franklin Oil Heating, Inc. has its burners manufactured on a contract basis, reports J. G. Gilmore, vice-president of the company. Mr. Gilmore does not know of any union organiza-

tion in the factory; the minimum starting wage for men is 50c an hour, and for women, 40c. The plant operates from 40 to 45 hours a week.

Motor Wheel—Under a written agreement with the United Automobile Workers of America, employees of Motor Wheel Corp. in Lansing, Mich., receive a minimum wage of 75c an hour for a 40-hour week, or \$30. C. C. Carlton, secretary of the company, estimates that the average weekly pay of piece workers (constituting 85% of the employees) is \$37.80. Those not on piece-work earn an average of \$34.40. The agreement contains simple machinery for adjustment of grievances, leaving the strike as a last resort. Seniority rights are protected, and there is a provision for allowance of reasonable leaves of absence to union members on union business. Time-and-a-half is paid for overtime and for work on Sundays or holidays.

Pressure—See *York*.

Quiet May—Mr. Gillis, the Baltimore representative of the A. F. of L., states that the May Oil Burner Corp. is non-union.

Rexoil—A. F. Reif, president of Reif-Rexoil, Inc., writes that his Buffalo plant operates under a 40-hour week, with full pay for holidays and time lost by sickness or accident. The minimum wage is \$22, and the average wage is estimated at \$29.50. Employees are paid a bonus at the end of each year, "the amount being determined by length of service and weekly wage." So far as Mr. Reif knows, none of his workers are affiliated with any labor union.

Timken—We have no information on the Detroit plant where this burner, one of the most widely sold brands, is manufactured. The company's attitude toward labor, however, was illustrated in March, 1936 by a decision of the National Labor Relations Board involving 18 strikers at the Long Island City, N. Y., branch. Testimony at a board hearing in December, 1935 showed that the assistant to Harry P. Dennison, branch manager, told a member of the Oil Burner Mechanics Association: "You should not jeopardize your position for any of these dumb monkeys out here. What I think you ought to do is resign from the [union] organization. . . . The pro-

posed action by the company is to fire the active members of the union."

The union member, E. Ormsbee, failed to accept this advice; he and his fellow unionists were afterward informed—profanely, they said—by Mr. Dennison that the company was "not going to sign this agreement or any other agreement, today, tomorrow, this week, next week, this month, this year, or next year. . . ." This ultimatum resulted in a strike, which was settled by Mr. Dennison's promise (later denied by him) to rehire the workers without discrimination. But new men were hired to take the places of 18 strikers, and the National Labor Relations Board, after an investigation, ordered the company to reinstate the 18 who lost their jobs because of the company's "wrongful refusal to bargain." It is now two years since the strike, and the NLRB has applied in Circuit Court for an order compelling the Timken Silent Automatic Co. to reinstate the 18 men.

Williams—These burners are made under an agreement with the International Association of Machinists (A. F. of L.), CU is informed by both the union and a company officer. R. O. Ahlenius, general manager of Williams Oil-O-Matic Heating Corp., says that the work week consists of 5 days of 9 hours each; apprentices start at 40c an hour, lathe operators and bench hands get 80c, tool-makers 90c, and die-makers, \$1. The agreement, signed last June, also provides for time-and-a-half for overtime work, and double time for work on Saturday afternoons, Sundays, and holidays. In the opinion of H. W. Brown, general vice-president of the union, the wage scale is "average."

York—CU's inquiry on labor conditions at the York Oil Burner Co. was answered by Laurence Knapp, vice-president, who said: "The information that you request is, as you can appreciate, of no particular interest to anyone other than ourselves." R. A. Warner, president of the York (Pa.) Federation of Trades Unions, is less reticent about conditions in this plant. The company, he writes us, is "strictly non-union" and "among the lists of low-wage firms for which York is noted."

Mr. Warner describes Pressure Oil Burners, Inc., also located in this city, in the same terms.

You do not have to buy expensive

Winter Motor Oils

There are good buys at low prices

IT is an enduring phobia with certain motorists that anything less than a 35c oil will put their cars' motors on the road to ruin. CU's tests on motor oils both in 1936 and 1937 have proved that this is far from the truth. In no case have the expensive oils possessed desirable qualities which could not be found in a number of much cheaper oils.

SAE 10 and 10W oils are recommended for winter use provided piston clearance in the car has not become so great from wear as to cause noticeable "slap," in which case a heavier oil is needed. In regions where extreme cold is encountered, 10W oils are definitely superior to SAE 10 oils. With the first warm weather of spring the oil should be changed; the very light winter oils are too thin for safe lubrication in summer. There is no need to change the oil more than twice a year (spring and fall).

In order to lessen the strain on the battery when starting a car during cold weather it is well to stop the car when putting it up for the night by pulling out the choke rod rather than by turning off the ignition. The gasoline drawn in lowers the viscosity of the oil on the cylinder walls. Starting a cold engine may also be facilitated by pushing the clutch in when the starter is turning the engine over. This disengages the engine from the transmission and reduces the drag on the starter.

The prices given below are for quart purchases (federal tax included) unless otherwise stated. All oils rated as "Best Buys" are of paraffin base. Note that these listings supersede those given in the 1937 *Buying Guide*.

See the July, 1937 issue for further discussion of motor oils.

Best Buys

Penn-Rad 10W (Radbill Oil Co.). 13.4c in 2-gal. lots.

Ward's 100% Pure Pennsylvania 10W (Montgomery Ward mail-order

and retail stores). 17.8c plus postage in 5-qt. lots.

Good Penn SAE 10 (Western Auto Stores in central and eastern states). 18c.

Also Acceptable

The following met 10W specifications:

Gulfpride 10W (Gulf Refining Co.). 35c.

Kendall 10W (Kendall Refining Co.). 35c.

Penn Co-op 10W (for nearest distributor in central states, write Midland Cooperative Wholesale, Minneapolis, Minn.). 30c.

Pennzoil 10W (Pennzoil Co.). 35c.

Shell-Penn 10W (Shell Oil Co.). 35c.

Sinclair Pennsylvania 10W (Sinclair Refining Co.). 30c.

Tiolene 10W (Pure Oil Co.). 30c.

Veedol 10W (Tide Water Oil Co.). 30c.

Wolf's Head 10W (Wolverine-Empire Refining Co.). 35c.

The following four 10W oils were a little lower in quality than those listed above:

Esso Uniflow No. 1 (Colonial Beacon Oil Co.). 35c.

Golden Shell 10W (Shell). 25c. (Sample purchased in East.)

Havoline 10W (The Texas Co.). 30c.

New Texaco 10W (Texas). 25c.

Resolutions & Finances

A REPORT on the resolutions introduced at CU's membership meeting last April has been prepared for publication in the November issue of the Reports. A complete statement of the resolutions adopted and the Board of Directors' action on them will be given.

The financial statement for CU's first fiscal year will also appear in November.

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The following met SAE 10 specifications:

Linco SAE 10 (Ohio Oil Co.). 25c.

Midland Co-op SAE 10 (Midland Cooperative Wholesale). 20c.

The following were misbranded as 10W oils; they met SAE 10 specifications, but are NOT 10W oils. The first three are good buys for SAE 10 oils.

Travelene 10W (Strauss Stores Corp.). 16.4c in 2-gal. lots.

Co-op 100% Pennsylvania 10W (for nearest distributor in eastern states, write Eastern Cooperative Wholesale, NYC). About 18c in 2-gal. lots.

GLF Penn 10W (for nearest distributor write Cooperative GLF Soil Building Service, 21 West St., NYC). 19.5c in 2-gal. lots.

Co-op 10W (Eastern Cooperative Wholesale). About 13c in 2-gal. lots.

Monogram 10W (New York Lubricating Oil Co.). 30c.

Quaker State 10W (Quaker State Oil Refining Corp.). 35c.

Richfield 10W (Richfield Oil Corp.). 30c. (Sample purchased in East.)

Valvoline 10W (Valvoline Oil Co.). 35c.

Argoil 10W (Argoil Petroleum Corp.). 20c. Inferior in quality to other oils in this classification.

Hyvis Winter 4 (30c) and Hyvis Winter 5 (30c) were high quality oils, but heavier than SAE 10 oils, and are recommended only where winters are mild. They were SAE 20 oils.

Not Acceptable

Macy's Re-refined 10W (R. H. Macy & Co.). 13.6c in 2-gal. lots. An inferior oil. Not 10W.

En-ar-co SAE 10 (National Refining Co.). 26c. Pour point too high.

The following oils did not meet SAE 10 specifications:

A-Penn SAE 10 (A-Penn Oil Co.). 13.6c in 2-gal. lots.

Amoco 10W (American Oil Co.). 25c. Inferior in quality.

Gulflube 10W (Gulf). 25c.

Mobiloil Arctic Special 10W (Socony-Vacuum). 30c.

Opaline 10W (Sinclair). 25c.

Tydol 10W (Tide Water). 25c.

CU'S MEMBERS report-

Seven from Detroit

TO CU: I have seven members in a group now and am trying to get more. But it is hard to get the housewives to join, especially Negro women. I am organizing the white women so we can work together on the housing conditions in Detroit. The members have paid 50 cents for the abridged *Reports* because they have so little money. But I am well pleased with being a member of Consumers Union. Detroit is growing to be a union city and I want the Negro women to do their part; and I am going to do all I can to help them.

BETTY STROMON

Detroit, Mich.

Support from Java

TO CU: My sincerest compliments on the splendid work you are doing. I hazarded a guess that your publications would be of value to me when, in opposition to most of my friends who assured me that the thing was "just a new sort of racket," I sent in my membership fee for last year. My guess proved a sound one, and I certainly shall support your good work as long as you keep it going along the present lines. . . .

A.H.

Batavia, Java.

Girdlerism & Fraud

TO CU: You will find me enrolled as a member since early in the year. When my membership runs out I intend to renew—I would renew if it cost twice as much.

I have not only had some worthwhile enlightenment on products I need now and then to buy, but I also value your comments on the labor situation in particular cases and in general. There is room and reason for an intelligent and voluntary boycott by consumers where unfair policies dominate as well as where inferior goods and misrepresentation are habitual outputs. All we need is to be informed. So I hope you will continue to do what you are doing. I speak not as a laborer or union man, for I am neither. I only want to see Girdlerism and fraud become unprofitable—if such an event may be hoped for . . .

C.F.M.

Long Beach, Calif.

Thanks to C.F.M. for his vote of confidence. For another member's ap-

proach to CU's labor notes, and CU's answer, see the editorial on page 2.

Suggestion from Sweden

TO CU: I thank you very much for your kindness to send me your amazingly interesting *Reports*. It is wonderful that you still are alive, all of you, after such a daring publication. Here these questions are just actual. I don't know how the question is going to be solved. I have just achieved an article for the social-democratic women's monthly about your pioneer work.

What a pity there are no more European [trade] marks. Perhaps you could have subscribers from different countries in editing special issues?

SONJA BRANTING-WESTERSTAHL.

Stockholm, Sweden.

One country at a time is about all CU can manage as things stand. Three—five—ten years from now—who knows?

Movie Ratings?

TO CU: May I suggest that CU consider reports on "Best Buys," etc. for the theatre- and movie-goer? Although I have learned to discount most of the advertisers' claims for their products, I am still occasionally led into wasting my time and money on worthless movies or plays which have been recommended by "impartial" commentators in the daily press.

Such criteria as story, acting ability, sentiment (e.g., pro-labor) and working conditions immediately suggest themselves. Whether or not the film or play would be suitable for children might also be included in the reports.

S.E.A.

New York, N. Y.

CU is not sure of the advisability of the suggestion (nor would its resources allow it to go into this field at the present time in any event). What do members think? Meanwhile S. E. A. might get in touch with Associated Film Audiences, at 250 West 57th Street, NYC. That organization, recently formed, provides an information service on movies covering just such points as S. E. A. mentions.

PORTABLE Typewriters

A preliminary survey of the field

TESTS of portable typewriters, which have been going on for several months, will be reported in full in the November issue of the *Reports*. For the benefit of students and others who must buy a machine this month, the following brief summary of the field is given.

Each of the major typewriter manufacturers makes three regular portable models: "Junior," "Standard," and "De Luxe." Of these, the Standard is the basic model in each line. Its list price is \$54.50. The Junior at \$37.50 is similar in many respects, but lacks a number of the important controls necessary for touch typing and helpful to any typist. These machines have no backspacer, no bell, no right-margin stop, no margin release key. Unlike the higher-priced models, they can be obtained only with large (pica) typeface. The De Luxe models have, in addition to the features of the Standard models, better finish, a tabulator key, and some provision for quieter operation. They list at \$64.50.

The Standard portables are advised for all ordinary service. Most people do not need the tabulator key of the De Luxe models, and the difference in noise is slight. The Junior models, on the other hand, are decidedly inconvenient in all but very light occasional service. While final ratings of all brands in their relative order of merit cannot be made until next month, CU suggests the purchase of either the *Corona Standard* or the *Royal Standard Model O*. Tests already completed indicate that these makes will give good service. CU has not completed its tests of the new models just announced by Underwood.

In buying a typewriter, try several machines of the make being considered, and choose the one with the best action, type alignment, etc. If no machine in the dealer's stock is perfect, insist that he make the proper adjustments or repairs. It should be remembered that

machines vary in their suitability for special types of work, such as making a large number of legible carbon copies. These special problems will be discussed in detail in November.

In many large cities, and perhaps in some smaller ones, it is possible to secure considerable discounts on ma-

chines of all standard makes. If satisfactory discounts cannot be secured, consideration should be given to the *Hermes Featherweight*, a Swiss typewriter selling for \$37.50 list. This is a lightweight but sturdily made machine equipped with several of the features omitted on the American junior models.

CONSUMERS UNION Reports

It is judged superior to them in ease and flexibility of operation, is well built, and should be fairly durable. Although its distribution in this country is as yet limited, it can be bought through some typewriter dealers and department stores and through Sears Roebuck (for \$34.95 postpaid).

Fact or Fable (Answers to questions on page 11)

* 1. False. There is no physiologic need whatsoever for these periodic purges. They are of no benefit. And they may end up by getting you into the harmful habit of taking laxatives steadily. If you are not constipated, leave yourself alone. If you are, find out first just what the nature of your condition is (it may be anything from simple anxiety or over-use of cathartics to a tumor) and then treat it according to the special requirements involved. See Aug.-Sep. (1937) *Reports* (also articles on the subject in this and preceding issues).

* 2. False. In CU's tests of ten washing machines only three—*Easy*, *Maytag*, and *Thor*—showed serious corrosion of parts. The first two of these were good machines on other counts; and the *Maytag* in particular would be a very good buy for anyone not intending to use alkaline soaps and powders. But a machine with such an inexcusable defect cannot be considered desirable. The other seven machines tested showed no significant corrosion. See May (1937) *Reports*.

* 3. The correct answer is *d*. Whether alum powder is safe continues to be a much debated subject. But in view of the doubts about its safety, it is advisable to limit its use, particularly since it offers no advantages over other types of baking powder. In addition to the alum content, self-rising cake flour generally deteriorates on standing and acquires a stale odor. See March (1937) *Reports*.

* 4. False. You will save money by using the smaller sizes because they cost less. The savings from the use of the smaller sizes are generally enough to warrant the purchase of new grates to accommodate them if necessary. See October (1936) *Reports* and the current issue.

* 5. True. A few remedies give some relief from the aches, fevers, and general uncomfortableness accompanying

colds. But most are worthless, some (such as mineral-oil nose drops) are dangerous, and none has the slightest effect on the cold itself. None of the serums, drugs, and special treatments announced from time to time and heralded as the long-sought cold cure has as yet proved to have any real value. Rest in bed, whenever possible, is advisable to prevent complications. Keeping your feet dry and avoiding contact with people having colds are about the only preventives. See Jan.-Feb. (1937) *Reports*.

* 6. False. Vast amounts of ballyhoo by manufacturers seeking a new spur to sales have misled many people into accepting metal tubes as a great improvement. Actually, they have a shorter life, stand up poorly in transportation and use, and in CU's tests the percentage of failures has been considerably higher with metal tubes than with glass. Metal tubes may some day be developed to a higher technical level, but to date the glass tubes re-

main generally more satisfactory. See June (1937) *Reports*.

* 7. False. A part-wool blanket, sold as such, is very likely to contain only an insignificant amount of wool, and often as little as 1% to 2%. There is a commercial standard in the industry stipulating that a blanket labeled part-wool should contain not less than 5% wool. But labeling is limited; and how faithful the manufacturers are to their agreement is a warranted speculation. See December (1936) *Reports*.

* 8. True. Of 18 pairs of street rubbers tested by CU, those having the highest tensile strength, the lightest weight, and the snuggest fit were of the all-rubber type. See September (1936) *Reports*.

* 9. True. All radiator liquids should contain rust-retarding substances, and the great majority of the commercial anti-freezes do. What's more, practically all of the anti-freezes work—in the sense that they will keep the radiator from freezing when used in proper concentration. In respect to other important qualities there is not so much similarity. Some solutions are corrosive, some affect the finish of the car, some evaporate or boil off easily, some soften rubber parts, some are poisonous. Ethylene glycol or preparations containing it are best; denatured ethyl alcohol is next best. Wood alcohol and glycerine should not be used. See October (1936) *Reports*.

* 10. True. Sizing neither adds to nor detracts from the wearing quality of the fabric, and will wash away in the first laundering. A little sizing (preferably less than 1%) is not objectionable. But excessive sizing (4% or more) commonly means that a poor-quality sheet is trying to masquerade as a good one. If a white powder sifts out when you rub a corner of a sheet between your fingers, the sheet is excessively sized. See March (1937) *Reports*.

Life Insurance

WITH life insurance companies collecting in the neighborhood of \$3,000,000,000 a year from policy holders, it is clear that insurance ranks as one of the leading commodities of the country.

Toward the end of advising its members on life insurance, CU has for some time been analyzing the subject with the help of leading specialists in the field.

The first results of this work will be offered in the November issue of the *Reports* in an article discussing and evaluating various types of policies.

More detailed articles are scheduled to follow in subsequent issues.

The role of diet in the treatment of

CONSTIPATION

***has been distorted by food faddists
and manufacturers. Here are some facts.***



Fifth of a series of articles written for CU by Harold Aaron, M.D.

AN IMPORTANT point to be kept in mind in the treatment of constipation (and, for that matter, in the treatment of any disease or disorder) is that every person troubled with the condition must be treated with respect to his individual characteristics. There is no single plan that will meet the needs of everyone. Some will be helped simply by an understanding of the physiology of the digestive tract, others by giving proper attention to the position at stool; some will require the aid of a mild stimulant such as salt water, others will need instruction about foods and eating habits.

While no single method is effective for all patients, many will be helped by a suitable diet followed along with other methods of treatment. Unfortunately, diet has become a playground for food faddists and unscrupulous manufacturers who are in business to sell a product. In the treatment of constipation by diet, the first thing to aim at is a balance which will meet the requirements of the body for calories, proteins, vitamins, and minerals. Information about what constitutes a well balanced diet should be obtained from the publications of the U. S. Public Health Service and state or city health departments,* not from the advertisements of *Fleischmann's Yeast*, *Ovaltine*, etc.

In some instances constipation may be due to insufficient food intake, so that simply by adding more food to the diet the malnutrition will be corrected and the bowels restored to normal behavior. An increased intake of cream and butter and the taking of an edible oil such as olive oil are recom-

mended by some authorities for the relief of constipation in the thin, undernourished individual. An ounce of olive oil, by itself or as a "cocktail" with tomato juice or orange juice, may be taken two or three times a day, preferably between meals.

ALMOST every article on constipation attributes the disorder, in part at least, to the use of concentrated food. The theory may be typified in such a statement as, "... the progress of civilization has been accompanied by such refinement of food and elimination of indigestible residue, chiefly cellulose, as to lead to the production of a smaller quantity of fecal matter and to less frequent bowel evacuation or constipation."

Manufacturers have seized upon this as an axiom and feature foods and seeds which will furnish the roughage supposedly required for satisfactory bowel movements. The "back to Nature" cry of the health faddists has also led thousands of people to the consumption of foods and grains more appropriate for cattle than for human beings.

The fact is that most of us enjoy concentrated and refined food, and as a rule thrive on it. It must be admitted,

however, that the intestines of some people require more bulk than is afforded by such a ballast-poor diet. And if we do not subscribe to the hysterical exhortations of food manufacturers and faddists, we can advise that it would be an advantage to many people troubled by constipation to add to their diet some roughage in the form of fruits, vegetables, and whole-grain cereals.

When adding more bulk or roughage to the diet, certain facts about the anatomy and physiology of the digestive tract should be kept in mind. As pointed out in the first article, the intestinal tract of man is not constructed like that of an herbivorous or plant-eating animal. The simple intestine of man is able to digest a wide variety of foods, but not the diet of a cow or rabbit. A food is normal for man so long as it does not contain large amounts of cellulose or lignin or similar roughage materials which require specialized anatomic structures for storage and digestion such as are present only in cattle, birds, and rabbits.

Another fact to be remembered is that the cellulose and other roughage present in fruits, vegetables, and whole-grain cereals are largely indigestible even when cooked. Moderately large amounts may be eaten without causing digestive disorder, but there are individual idiosyncrasies in digestive capacity. Some people can eat a dinner of cabbage, baked beans, huckleberries, sweet corn, and melon—that is, a meal with a high percentage of roughage—without the slightest inconvenience. The same meal can produce the most violent distress in others.

An increase in the amount of vegetables and fruits and whole-grain cereals in the diet, therefore, may be

The Final Installment

CU'S series of articles on constipation will end with the next issue. The final installment will deal with a variety of laxatives and cathartics, among them:

*Cascarets
Castoria
Ex-Lax
Feenamint
Milk of Magnesia*

*Nujol
Petalagar
Pluto Water
Sal Hepatica
Serutan*

* One useful publication is *Farmers Bulletin No. 1757*, issued by the United States Dept. of Agriculture.

helpful to certain people troubled by constipation, provided that the increase is moderate and respects individual sensitivity of the digestive tract.

WHAT kinds of foods with roughages should one choose? The choice of different fruits and vegetables has always been based on the assumption that those containing the highest percentage of cellulose would be most effective in relieving the constipation. The cellulose was supposed to pass unchanged into the colon and there stimulate mass movement because of its bulk and ability to distend the gut. Recent work by Drs. Olmsted and Williams of the Washington University School of Medicine has thrown strong doubt on these assumptions.

These doctors analyzed the roughage or indigestible residue of vegetables, whole-grain cereals, and other materials and found that it consisted not only of cellulose but also of lignin and hemi-cellulose. In experiments with human subjects it was discovered that those foods which contained the most hemi-cellulose were most effective in increasing the volume of the stools and in relieving constipation. Those foods which contained cellulose were not particularly helpful unless they also contained hemi-cellulose. Lignin is not only inactive but, whenever present, apparently counteracts the effects of hemi-cellulose.

The most satisfactory stools were obtained with materials high in hemi-cellulose, such as cabbage, carrots, and agar. The least satisfactory stools were obtained with materials high in lignin, such as bran. It is true that when bran was used the stools were bulky, but they were also dry and irritating to the rectum. The stools of normal human subjects who used bran were either passed with difficulty (in some the stool was even blood-flecked) or the bran was frankly constipating. The conclusions from this research were: (1) Foods that contain lignin, such as bran, should be avoided. (2) Foods containing cellulose are useful but not nearly so effective as those containing hemi-cellulose.

Unfortunately there is not yet available a complete analysis of foods from the point of view of their content of hemi-cellulose. Until more studies are completed and the work of Drs. Olmsted and Williams can be corroborated

and amplified, it would be advisable for those who can tolerate roughage to seek it by including a wide variety of vegetables in their diet, avoiding proprietary preparations such as bran. The virtues and uses of agar will be described in the next article.

Fruits may also be helpful in the treatment of constipation because they contain roughage and because the juices contain certain acids, sugars, and salts which are laxative. Among the most valuable are prunes, figs, raisins, dates, apples, and bananas. About eight large, juicy stewed prunes may be taken every day, either all at breakfast or divided between two meals. Each person should experiment to determine just how many are necessary (knowing first whether any is necessary) to produce satisfactory results. Concentrated prune juice may be as effective or better than the whole prune for some people.

Whole-grain cereals and whole-wheat and bran breads have long been recommended for increasing roughage in diet. The roughage in these foods consists of the bran present in the whole grain. They also contain vitamin B and minerals, so that from the point of view of general nutrition they are superior to refined cereals and white bread. However, it is possible to get vitamin B, minerals, and the virtues of roughage as well, by the addition of fruits and vegetables alone. It is not necessary to include whole-wheat breads and cereals and it may be advisable to avoid them because of possible irritation. If one prefers them to vegetables

or fruits, a moderate amount may be taken without harm.

One further caution. In increasing the amount of roughage in the diet, it is advisable in the beginning to add only one or two fruits or vegetables such as prunes, apples, carrots, or beets. After a few days, another fruit or vegetable may be added until satisfactory evacuation is established. If colic, distention or other evidences of irritation occur, the amount of roughage should be diminished or roughage should be avoided altogether.

IT is appropriate to end our discussion of roughage by a final evaluation of bran. Kellogg's All-Bran is the most widely advertised of the bran products for the treatment of constipation. Its virtues are proclaimed in such statements as "It passes through the system—gently sponging the intestinal walls as it goes along." The irritating properties of bran have already been discussed in terms of the work of Drs. Olmsted and Williams. Their observations simply confirm what many outstanding physicians have long thought.

Dr. Walter Bastedo, who has had a great deal of experience in the treatment of intestinal disorders, says: "Bran administered by itself is not a food but is probably an irritant drug."

Dr. W. D. Sansum, an authority on nutrition, recently said: "It seems to us that bran probably should not be used in greater quantity than is found in whole wheat, lest it produce a condition or irritation similar to that caused by cathartics."



REPRODUCED FROM "COUNTERFEIT." BY ARTHUR KALLST, VANGUARD PRESS

BRAN IS NOT SANDPAPER BUT . . .

. . . So far as your intestines go there may not be much difference

Dr. Philip W. Brown of the Mayo Clinic sums the matter up thus:

Most physicians now agree that people have gone far beyond the bounds of common sense in the manner in which they have poured foreign, insoluble stuff into the digestive tube. Granted, indeed, many people have been able to tolerate, and their intestines have functioned better with, this wadding, but for one of them there must be five, probably fifty, to whose distress it merely has added. Again, to quote Dr. William J. Mayo, "It is bad enough to stuff on rabbit food without packing your bowel full of sawdust." Some physicians feel that it is unwise for whole-wheat cereals and breads to be routinely included in the diet. Again, if any of these things help there is no argument but I do not recommend them as a rule. Rectal masses, the size of a large grapefruit, may occur from use of bran or vegetable mucins (psyllium), particularly if people are elderly. If these substances are used at all, they should be taken in only small doses, and later it should be ascertained that the stuff is not packing in the rectum, even though the patient may be having daily movement of the bowel.

Other physicians as well as Dr. Brown have reported cases where obstruction of the small and large intestine has occurred by accumulation of bran into a large ball. As though these evils were not enough, Dr. Hurst in an article published this year says: "Proprietary foods with large quantities of roughage (such as bran) should be avoided as their coarse ingredients are a common cause of gastritis (inflammation of the stomach)." In other words, bran is a material unsuited for human consumption and should be relegated to the barn where it has some usefulness. If roughage is needed it should be obtained from fruits and vegetables.

IN THAT nervous disorder known as spastic constipation, the diet must be free of all irritating bulk or roughage. The gut is in a state of irritability or nervousness, if you will, and must be spared the work or irritation that a bulk-producing diet imposes. Foods should be chosen from among the following, since they provide very small amounts of indigestible residue or roughage: lean meat, liver and chicken minus the gristle, fish, white and rye bread, cooked and strained cereals, puffed cereals, eggs, butter, cream, milk, rice, potato without skin, puréed beans and peas and spinach, artichoke hearts, asparagus tips, fruit juices,

apple sauce, stewed peaches and pears, cottage cheese, ice cream, and gelatin.

A small amount of bulk may be desirable occasionally, and for that purpose the least irritating substance is agar. Many are helped by eating two or three bananas a day. They should be entirely ripe; the skin must be entirely yellow and generously flecked with brown streaks. The salt-water plan may be tried. If three glasses produce too loose a movement, one or two glasses may prove right. Constipation, however, is only one of many symptoms present in this disorder, so that general hygienic measures such as regular hours, regular periods of relaxation after meals, and outdoor sports are also useful. Above all, the anxieties and distresses incident to modern living must be cushioned as much as possible.

THERE has been a good deal of advertising recently exploiting the virtues of vitamin B₁ in the treatment of digestive disorders; the addition of vitamin B to the normal average diet is either implicitly or openly urged as a cure for constipation. *Kellogg's All-Bran*, for example, "provides vitamin B to tone up the intestines." (Incidentally, advertisements of *Kellogg's All-Bran* appear frequently in reputable newspapers and magazines despite the fact that the Council on Foods of the American Medical Association has found the advertising misleading and contrary to the best interests of the public.)

If you have "distended bowels," "poor digestion," "sagging stomach," and "weak or sluggish intestines," you are urged to take *Fleischmann's Yeast*.

But vitamin B is not a constipation cure and there is no basis for any of these claims. A well balanced diet containing milk, eggs, and vegetables will furnish enough vitamin B for all needs. It is only when constipation is a symptom of a vitamin B deficiency caused by a lack of these foods for a long period that a vitamin B concentrate such as yeast is necessary; and then brewer's yeast, a richer and cheaper source of the vitamin than *Fleischmann's*, should be used.

MANY people believe that milk is constipating. As a rule, however, it has practically no influence on intestinal movements. There are some

people, of course, who are sensitive to milk and who may experience a reaction which interferes with the normal activity of the colon, or may even produce indigestion. Either constipation or diarrhea may result. For the great majority milk is an excellent food which causes neither constipation nor loose stools. One or two glasses a day is sufficient for adults. Children and nursing mothers require one quart daily.

Sour milk, produced by fermentation of whole milk by acid-forming bacteria, once had an extraordinary popularity as a remedy for all varieties of diseases and for the cure of constipation. At present it is not believed that it will prolong life, cure tuberculosis, or the like but it is still urged by many physicians for the treatment of constipation.

The recommendation is based upon the supposition that drinking sour or fermented milk will cause a substitution of acid-producing bacteria for alkali-producing bacteria in the colon. The growth of acid-producing bacteria, the most important of which are supposed to be the *Acidophilus Bacilli*, is assumed to overcome putrefaction in the colon and to encourage normal bowel movements. *Acidophilus* milk is now the most widely known of these special purpose milks.

There may be some people who will feel better and whose bowels will act more regularly when they drink one or another of these milks. It is still a question, however, whether or not the improvement will be due to change in the bacterial content of the colon. In some people with sensitive stomachs the milk can cause indigestion. According to its advocates, at least one quart of this milk each day is necessary to overcome constipation. In New York City, *Acidophilus* milk costs 40 cents a quart, so that the treatment is expensive as well as of doubtful value and certainly is not one to be relied on. Other fermented milks such as Koumiss, Kefir, Matzoon, and Yogurt are also expensive and of even more doubtful value. Their chief virtue is a pleasant flavor.

(This is the fifth article in a series of six on the subject of constipation. The final article will appear in the next issue of the Reports).

CONSUMERS UNION reports—

(Continued from page 2)

Since this policy has been consistently advertised, we do not understand our correspondent's reference to deception.

Whatever influence the labor notes have on members' purchases is entirely up to the members; as our correspondent knows, technical reports and labor reports are kept completely separate. The technicians who prepare the ratings of products do not see the labor reports until they are published.

Our hope, of course, is that CU's members will be influenced by the labor reports.

That is, we hope they will be sufficiently farsighted to understand that in the long run they serve their own interests best when they buy union-made merchandise where possible. We are saying nothing new to the pages of the *Reports* when we say this. The very first issue, May, 1936, carried an editorial on this theme.

Since that editorial was a statement of the purpose of the organization, it provides the best possible answer to our correspondent's letter. Let us quote from it:

According to its charter, Consumers Union is intended to help "maintain decent living standards for ultimate consumers." Consumers Union is a technical organization. The main efforts of its staff, the main use of its funds, will be to conduct research and tests on consumer goods and to provide consumers with information which will permit them to buy . . . most intelligently.

. . . "Decent living standards for ultimate consumers" will never be maintained [however] simply by reporting on the quality and the price of products. All the technical information in the world will not give enough food or enough clothes to the textile worker's family living on \$11 a week. They, like the college professor or the skilled mechanic, are ultimate consumers; but the only way in which any organization can aid them materially as consumers is by helping them, in their struggle as workers, to get an honest wage.

By reporting on the labor conditions under which consumer goods are produced; by letting consumers know what products are manufactured under good labor conditions so that when possible they can favor them in making their purchases; by letting them know what products are produced under unfair conditions so that consumers can avoid such products; Consumers Union hopes to add what pressure it can to the fight for higher wages and for the unionization and the collective bargaining which are labor's bulwark against declining standards of living.

Report on Publisher Smith

THE latest word from the *National Consumer News* is that the first issue under the new publishing plan—originally scheduled to come out sometime in September—isn't going to come out until sometime in October.

We haven't been let in on the reasons for this. But the new plan is pretty tricky, and maybe it's taking longer to get it under way than the people behind it had expected.

Maybe, for instance, Publisher Crump Smith wants to settle a few more things with the chain-store members of the Institute of Distribution, who have become such close friends of his lately.

The Institute, you will remember, is accounted to be on one end of the strings in the phony Consumers Founda-

tion (of which Publisher Smith is one of the guiding spirits). The advertising trade has it figured out that *National Consumer News* is marked to turn into a house organ for the Foundation. Well, an arrangement like that takes time to perfect.

Or maybe Publisher Smith is waiting for more advertising to come into his magazine at \$540 a page. California Packing Company (Del Monte) has taken the center spread in full colors, which is a nice start. Maybe Publisher Smith is waiting for a tumble from the drug and cosmetic people. They hold the purses on the really big advertising expenditures.

Or maybe Publisher Smith and his co-workers can't make up their minds about the editorial contents. Maybe they're putting the finishing touches on an article listed for the first issue under the heading, "Do Chain Stores Serve the Consumer Interest?" Or maybe they're reworking another scheduled feature, "How Advertising Serves the Consumer."

No Relation

A CU MEMBER from St. Paul has forwarded an application card issued by a new outfit which has taken the name "American Consumers Union, Inc." It is soliciting contributions from consumers who are "sick of being made the goat of employer-employee battles" and are equally sick of "paying the higher prices resulting from their disagreements."

The new organization apparently hopes to achieve its goal of "industrial peace" by arousing public opinion against labor unions. Its first official action, we judge from clippings that have reached us, was to announce to the newspapers that it disapproved a strike of about 40 employees of a laundry because it considered the firing of a driver "not sufficient to warrant tying up the plant."

So long as employers in St. Paul fire union-minded employees one by one instead of in batches of 40, their contribution to industrial peace will no doubt be blessed by the "American Consumers Union."

Founded on the naïve premise that the consumer is an isolated bird who should shun labor's efforts to raise the American standard of living, the St. Paul organization cannot expect to be viewed with anything but suspicion by consumers who naturally desire better wages and salaries for themselves as workers.

It is hardly likely that this "consumers union" will take up the cudgels against manufacturers who are lowering living standards by raising prices out of all proportion to the increase in labor costs. Nor is it probable that the two St. Paul lawyers who hatched this sweetly labeled egg will protest against the higher prices forced on consumers by manufacturers who pay huge bills for tear gas, machine guns, ammunition, strikebreakers, and thugs as a means of bringing about industrial peace.

We shall appreciate our members' cooperation in informing their friends that the "American Consumers Union, Inc." is an outstanding example of the type of organization with which Consumers Union of United States has and wishes to have no connection whatsoever.

